# EVALUATION AND GENETIC ANALYSIS OF BACKCROSS NESTED ASSOCIATION MAPPING (BCNAM) POPULATION IN SORGHOM (*Sorghum bicolor* (L.) MOENCH) UNDER MOISTURE STRESS CONDITIONS AT MEISO, EASTERN ETHIOPIA

**MSc THESIS**

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**A Thesis Submitted to the School of Graduate Studies, Jimma University, College of Agriculture and Veterinary Medicine**

**In Partial Fulfillment of the Requirement for the Degree of**
**MASTER OF SCIENCE IN PLANT BIOTECHNOLOGY**

**By**

**NEZIF ABA JEBAL**

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**Jimma, Ethiopia**

# DEDICATION

I dedicated this thesis to my father Ato Aba Jebal Aba Dura, my mother W/ro Ayisha She Imam and my brothers who continued to encourage and support me throughout my journey of seeking knowledge.

## STATEMENT OF THE AUTHOR

First, I declare that this thesis is my work and that all sources of materials used for this thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for MSc degree to Jimma University and is reserved at the university library. I solemnly declare that this thesis is not submitted to any other institutions anywhere for award of any academic degree or certificate.

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# BIOGRAPHICAL SKETCH

The author, Nezif Aba Jebal Aba Dura, was born on September 11, 1992 at Sekoru Woreda, Jimma Zone of Oromia Regional State. He attended elementary and junior secondary schools at Bagiso and Deneba, and high school at Sekoru Secondary and Preparatory School. Following the completion of his preparatory education, he joined Gambella University College of Agriculture in 2012/13 and graduated with Bachelor of Science degree in Plant Sciences in July 12, 2015. After graduation, he was employed by Gambella University College of Agriculture, Department of Plant Sciences and has been working as Graduate Assistant, until he joined the graduate studies program of Jimma University College of Agriculture and Veterinary Medicine in 2016/2017 to pursue a graduate study leading to A Master of Science degree in Plant Biotechnology.

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# LIST OF ABBREVIATION AND ACRONYMS

| | |
|---|---|
| BCNAM | Backcross Nested Association Mapping |
| DAP | Diammonium Phosphate |
| EIAR | Ethiopian Institute of Agricultural Research |
| FL | Flag Leaf |
| GA | Genetic Advance |
| GCV | Genotypic Coefficient of Variation |
| GLM | General Linear Model |
| $Hb^2$ | Broad Sense Heritability |
| IBPGR | International Board for Plant Genetic Resources |
| ICRISAT | Institute of Crop Research Institute for the Semi Arid Tropics |
| ISTA | International Seed Testing Association |
| LSD | Least Significant Difference Test |
| m.a.s.l. | Meters above sea level |
| MARS | Marker Assisted Recurrent Selection |
| MSS | Mean Sum of Squares |
| NAM | Nested Association mapping |
| PCA | Principal Component Analysis |
| PCs | Principal Components |
| PCV | Phenotypic Coefficient of Variation |
| QTL | Quantitative Trait Loci |
| RILs | Recombinant Inbred Lines |
| SG | Stay Grain |
| WUE | Water Use Efficiency |

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## ABSTRACT

*Drought is the major constraint for sorghum production in Ethiopia causing high yield loses every year. Developing and using drought tolerant sorghum varieties is one of the available solutions to cope with the effects of drought. The objectives of this study was to evaluate BCNAM population for drought tolerance and other agronomic traits and estimate components of variance, heritability and genetic advance of traits. The experiment was conducted at Meiso (Western Harerge) under rainfed condition. A total of 1464 BCNAM progenies (BC1F4 genotypes), 14 parents and two checks (local and standard) were evaluated using an alpha lattice design with two replications. The analysis of variance showed highly significant difference (P<0.01) among the genotypes for all the studied traits. With regard to grain yield per panicle, genotypes 660,10, 141, 494 and 970 were found to be the top performing genotypes while 552 followed by 1358, 1464, 636 and 1308 were the poor ones. The variability estimate indicated that phenotypic coefficient of variation (PCV) ranged from 3.42% for days to flowering to 41.74% for panicle excertion while genotypic coefficient of variance (GCV) ranged from 1.24% for days to maturity to 25.15% for panicle excertion. Heritability ($Hb^2$) estimates ranged from 8.39% for number of tiller to 36.32% for panicle excertion. Panicle excertion and number of leaf showed moderate heritability values of 34.55%, 31.46% and 36.32%, respectively. Moderate heritability coupled with high genetic advance was observed in panicle excertion. Number of leaf, panicle weight, 1000 seed weight and panicle harvest index had higher magnitude of phenotypic and genotypic correlation with grain yield per panicle. The path coefficient analysis indicated that panicle weight and panicle harvest index contributed high positive direct effect to grain yield per panicle followed by number of leaf. The principal component analysis indicated that the first three principal components (PCs) explain 64.85 % of the total variation. The presents study indicate the presence of genetic variability among the genotypes. However, there is a need to repeat the experiment so as to get reliable phenotypic data for QTL mapping.*



**Keywords:** *Sorghum bicolor* (L.) Moench, drought, stress, PCV, GCV

# 1. INTRODUCTION

Sorghum (*Sorghum bicolor* (L.) Moench) belongs to the Poaceae family and tribe Andropo goneae (Harlan and de Wet, 1972). It is a self-pollinating, diploid (2n = 2x = 20) with a genome size of 730 Mb (Paterson *et al.*, 2009). The genus sorghum is very diverse and all cultivated sorghums belong to *Sorghum bicolor* species. Within cultivated sorghum there are five commonly used races including: bicolor, durra, kafir, guinea and caudatum (Doggett, 1988; Devries *et al*., 2001).

The global sorghum productivity is 1.4 tons/ha (FAO, 2016) while cultivated area is 44.29 million hectares in 2016 (USDA, 2017). Important sorghum producing countries in the world are United States, Nigeria, Mexico, Sudan, India, China, Ethiopia and Argentina. In Africa, production is a total of 23.31 million metric tons on 24.64 million hectares. Nigeria, Sudan and Ethiopia are the major sorghum producers in Africa, which accounts 63.58 %. In Ethiopia, ranking third after maize and teff in total production while annually 1.8 million ha of land is allotted for sorghum production with a total production of 3.8 million metric tons of grain (CSA, 2016). The national average sorghum productivity in Ethiopia is 2.23 tons/ha (CSA, 2014) which is far below the global average of 3.2 tons/ha (FAO, 2005).

Sorghum serves as a dietary staple crop for 500 million people in over 30 countries of the semi arid tropics (Dahlberg, 2011). Additionally, sorghum grain is used as livestock feed and production of local beverages, while the stalk is used for animal feed, firewood, and as a construction material (Beyene *et al.*, 2015). Sorghum grain is as nutritious as other cereal grains; contains about, 340 k/cal of energy, 70% carbohydrate, 12% protein, and 3% fat. As in other cereals, the sorghum grain is predominantly starchy (Rhodes, 2014).

Several factors limit sorghum yields including: drought (prolonged dry periods, or delayed rainfall), nutrient deficiencies, weeds, insects, wet weather at planting and harvest, lodging, excessive rainfall, early frost, snow, extreme cold conditions, high temperature and bird attacks (Assefa and Staggenborg, 2010). However, drought is by far the major yield limiting factor badly affecting the crop productivity world wide (Hussain *et al*., 2011). Drought limits photosynthesis and consequently, availability of photosynthetic assimilate and energy to the plant.

El-Kholy *et al*. (2005) reported that drought stress, generally changes plant growth and development pattern by suppressing cell division, organ growth, net photosynthesis, protein synthesis and alters hormonal balances in major plant tissues, hence causes severe effects on yield.

Sorghum is relatively tolerant to pre-flowering and post-flowering drought (Phuong *et al*., 2013). Despite its relatively greater genetic plasticity, both stages may lead to significant yield losses or crop failure. Occurrence of drought at anthesis and grain filling stages may result in reduced yield or complete crop failure (Younesi and Moradi, 2009). In addition, occurrence of post-flowering drought often causes premature plant death, lodging, reduction in seed size and ultimate yield losses (Borrell *et al*. 2014). Drought stress permanently affects sorghum cultivated area by 28% in the world (Li *et al*., 2009). Drought stress is expected to be more severe in the coming years and drought affected areas may double in the year 2050 (Rauf *et al*., 2016). In Ethiopia, sorghum yield is frequently impacted by recurrent droughts due to low and variable rainfall between and within the seasons. Taye (2016) reported that the productivity of sorghum in Ethiopia is constrained by drought mainly in the low land environment and drought stress inflicted a total crop failure in 2015 cropping season. Tekle and Zemach (2014) stated that the productivity loss is associated with the lack of improved varieties to drought tolerance that have been appreciated as one of the primary sources of lower sorghum production**.**

Kamal *et al*. (2017) developed 46 BC2F4 stay-green introgression lines (BILs) and reported genotypes showing significantly more stay-green expression and able to better maintain their relative yield level in the post-flowering stress environments. Lamessa *et al*. (2016) evaluated the adaptability and stability of improved (early maturing) released sorghum genotypes at Miesso, Mechara and Hawi Gudina and recommended ESH-1 and Girana-1 for further promotion in moisture stress area of West Hararghe to contribute towards food security in the area. Kassahun *et al*. (2010) identified QTLs associated with stay grain and provided useful evidence of the marker assisted backcross transfer of stay green QTLs from donor parent in to an adapted recurrent parent. Getahun *et al*. (2014) evaluated the agronomic performance of three stay green (Sorcoll 141, Sorcoll-146 and Sorcoll-163) and a farmer preferred variety (local check) under drought prone area and found that the stay green varieties outperformed the local in at least one desirable agronomic trait. Fantaye and Hintsa (2017) had worked on performance evaluation of sorghum [*Sorghum bicolor* (L.) Moench] hybrids in the moisture stress conditions and reported that relatively high magnitude of phenotypic and genotypic coefficient of variations for grain yield, biomass yield and harvest index.

Vadez *et al*. (2011) showed existence of range of variation in yield, harvest index, transpiration efficiency and water extraction among sorghum genotypes. In Ethiopia, being an indigenous crop, sorghum has tremendous amount of variability (Kassahun *et al*., 2015). However, the existing variation may not be sufficient. Hence, there is a need to create new variability by crossing genotypes from different sources and transfer of desirable traits from exotic donor parents to more elite locally-adapted. BCNAM is a prominent approach for increasing genetic variation across contributing parental genotypes in complex traits (Rafalski, 2010). In BCNAM, the effects of agronomically-unadapted alleles are reduced, allowing estimates of the value of exotic alleles in the context of cultivated germplasm, with preference being given to important traits by the farmers. In this study, we used BCNAM population developed by crossing parental lines from caudatum and dura races of sorghum which have complimentary features for drought tolerance. The race caudatum which is most common in Ethiopia is poor in water extraction ability but highest transpi ration efficiency. On the other hand,race durra is highest water extraction capacity and also high transpiration efficiency. So far, no drought tolerance sorghum genotypes had been derived by the BCNAM approach in Ethiopia. Therefore, the objectives of this study were:

**Objectives:**

- To evaluate the BCNAM population for drought tolerance related and other agronomic traits
- To estimate components of variance, heritability and genetic advance among traits
- To estimate association among grain yield and other yield related traits along with their direct and indirect effects

# 2. LITERETURE REVIEW

## 2.1. Origin, Biology and Ecology of Sorghum

The domestication of sorghum (*Sorghum bicolor* L. Moench) obviously began in North-East Africa present (Ethiopia and Sudan) around 4000-3000 BC (Dillon *et al*., 2007). Sorghum has been domesticated since approximately 3000 years B.C. in the Ethiopian region (Amsalu and Endashaw, 1998) and parts of Congo with secondary centres of Origin in India, Sudan and Nigeria, where it is mainly used for human food (Berenji *et al*., 2004). In 1951, Vavilov suggested Ethiopia as a center of origin of sorghum due to the wide variation of the crop (Vavilov, 1951). Early domestication occurred by a process of disruptive selection where several traits advantageous for cultivation were favoured. Improved sorghum types were probably transported from North-Eastern Africa to other parts of Africa (1500-1000 BC) through trade routes and human movements (Kowal, 2017).

Sorghum (2n=20) belongs to the Poaceae family (tribe Andropogoneae, subtribe Sorghinae). Sorghum genus consists of 22 species and is separated in to five taxonomic subgenera or sections: Eu-Sorghum, Chaetosorghum, Heterosorghum, Para-sorghum and Stiposorghum (Venkateswaran *et al*., 2014). Sorghum bicolor belongs to sections Eu Sorghum, just as its progenitor S. verticilliforum and S. halapense (Johnson grass, a very noxious weed). The races of grain sorghum are morphologically distinct and they maintain their unity of type through spacial and ethnological isolation (De Wet , 1987). Four of the five major races (bicolor, caudatum, durra and guinea) of the cultivated sorghum and one intermediate race are found in Ethiopia (Stemler *et al*., 1977).

The races; caudatum, kafir, guinea and durra were created by the crossing of early bicolor with the wild forms of sorghum. It is believed that the Guinea race has been evolved when the bicolors came into contact with the wild S. arudinaceum. The caudatum race is also believed to develope from a cross between an early domesticated Bicolor and wild sorghum (Dahlberg, 2000). The kafir race is thought to be developed from crosses between Bicolor in Northern Africa with wild verticilliflorum that was carried from east toward south by the Bantu speakers of Africa (Dahlberg, 1995). The durra race is thought to be originated in Ethiopia as a result of crossing between early bicolor and with wild S. aethiopicum which allowed it to cope with drier conditions. Durra and caudatum are often used in breeding programs because of their drought resistance. Dwarfing genes used to produce short improved sorghums were originally found among durra varieties (Morris *et al.*, 2012).

Sorghum is a short day plant but a wide genetic variation exists for its adaptation to a wide range of photoperiod and temperature conditions (Craufurd *et al.*, 1999). It performs better under adverse soil and weather conditions as compared to other crops. But, it requires a deep, well-drained fertile soil, fairly stable rainfall and a warm, frost-free period to grow well. Sorghum is not tolerant of frost, shade, or sustained flooding (Clark, 2007). A wide range of soil conditions can be tolerated, but growth on sandy soils is usually poor, unless heavy textured subsoil is present. A PH of between 5.5 and 8.5 is acceptable.

Sorghum is a C4 species that is a very water efficient (Spenceley *et al.*, 2005; ICRISAT 2015). It requires a warm, summer growing period of 4-5 months. A temperature of 27°C to 30°C is required for optimum growth and development (Downes 1972). However, a temperature of as low as 21°C can have a dramatic effect on growth and yield (Vanderlip and Reeves, 1972). If temperatures are exceptionally high, grain yields can be reduced. Temperatures below zero can result in death of the plants, especially if plants are older than 3 weeks. It requires an annual rainfall of 400 to 800 mm, which should be well distributed over the cropping season (Ng'uni *et al.*, 2011).

### 2.2. Production and Constraints of Sorghum

Grain sorghum (*Sorghum bicolor* L. Moench) is one of the important cereal food crops in the world and ranks the fifth after maize, rice, wheat, and barley (FAOSTAT, 2014). According to the USDA report released in September 2017, world production of sorghum is 60.32 million tons. The contribution to world production by selected countries is as follows: the United States contributed (9.38 million tons), Nigeria (6.6 million tons) with Mexico (6 million tons) and India and Sudan both (4.5 million tons, respectively) and Ethiopia (3.8). In Ethiopia, sorghum is predominantly cultivated in lowland areas that cover nearly 66% of the total area of the country. It ranks third in both total area coverage and in total production next to maize and teff. It is grown in almost all regions in the country. Oromia, Amhara and Tigray are the three major sorghum producing regions in the country with area coverage of (739,781.8 ha), (670,114.31 ha) and (253,757.11 ha); the production in quintals is estimated to be (19,166,012.28), (16,402,994.23) and (7,120,054.32), respectively (CSA, 2016).

Sorghum production constraints limit its yielding potential and cause significant grain yield loss. The constraints include leaf, stem and panicle pest, Striga weed, N-deficiency, crop establishment difficulties, drought (water deficit), soil fertility depletion, cold stress/ frost damage and inadequate farmer production. But, the relative importance varies from region to region, within and among the countries. Reddy *et al*. (2004) worked on sorghum breeding research at ICRISAT and reported that the important productivity limiting constraints are: shoot fly (Atherigona soccata) (India and Eastern Africa), stem borer (Chilo partellus) (India and Africa), midge (Contarinia sorghicola) (Eastern Africa and Australia) and head bug (Calocoris angustatus) [India and Western and Central Africa (WCA)] among pests; grain mold (complex of fungi predominantly Fusarium spp, Curvularia spp, Aspergillus spp, Alternaria spp) (all regions) and anthracnose (Colletotrichum graminicola) (WCA and northern India) among diseases; Striga (Striga asiatica, S. densiflora, S. hermonthica) (all regions in Africa); drought (all regions); and problematic soils-saline (some parts of India and Middle East) and acidic (Latin America).

Wortmann *et al*. (2006) reported that drought, low soil fertility (nutrient deficiencies), insect stem borers, insect shoot fly, quelea birds, Striga and weeds were recognised as major production constraints affecting sorghum in eastern Africa. In Ethiopia, drought and Striga weed have been found to be the most important constraints in the northern and north-eastern parts of the country (Gebretsadik *et al*. 2014).

Beyene *et al*. (2016) reported that constraints affecting the productivity of sorghum which include moisture stress, insect pests, striga, farmland shortage, poor soil fertility, diseases, and low-yielding local cultivars. Among the constraints, drought at the grain- filling stage was identified as the most important production problem in the target region.

**2.3. Effect of Drought on Yield and Yield Components**

Shakeel *et al*. (2011) had reported that drought stress progressively decreases $CO_2$ assimilation rates due to reduced stomata conductance. It reduces leaf size, stems extension and root proliferation, disturbs plant water relations and reduces water use efficiency. It disrupts photosynthetic pigments and reduces the gas exchange leading to a reduction in plant growth and productivity. Hall *et al*. (1987) stated that water stress reduces the rate of cell expansion and ultimately cell size and growth rate.

Fussell *et al*. (1991) had worked on crop physiology and drought tolerance and reported that phenotypic traits related to yield under stress were divided into those reflecting drought escape and those reflecting drought tolerance and the drought response accounted for more than 40% of the observed yield differences. Based on these, he concluded considerable progress in yield under stress should be possible by selection for earlier flowering and improved yield potential alone.

Sorghum was subjected to severe water stress at different stages of development in the field. Drought stress in sorghum has been characterized at both pre-flowering and post-flowering stages resulting in a drastic reduction in grain yield (Kebede *et al*., 2001). Sorghum is known to be sensitive to water stress during flowering and early grain filling stage than at early growth period (Seetharama *et al*., 1987). Stress around heading times reduced yield substantially, whereas the reduction was slight or nil with stress occurring either much earlier or later (Hsiao *et al*., 1976).

Drought mainly influences yield by limiting seed numbers by either influencing the amount of dry matter produced by the time of flowering by directly influencing pollen or ovule function, which leads to decreased seed-set. In addition, drought influences seed filling mainly by limiting the assimilate supply, leading to smaller seed size and lower yields (Frederick *et al*., 1991; Wardlaw and Willenbrink, 2000). In sorghum, genotypes with the stay-green trait continue to fill their grain generally under moisture stress conditions (Rosenow and Clark, 1981). Mahalakshmi *et al*. (2002) stated that stay green is a valuable trait that improves genotype adaptation to drought stress, grain filling and grain yield under stress.

Jabereldar *et al*. (2017) had studied effect of water stress on yield and water use efficiency of sorghum (*Sorghum bicolor* L. Moench) in semi-arid environment and showed that water stress at eight leaf stage reduced panicle excertion, panicle weights, number of grains per panicle, 100-grain weights, seed yield and water use efficiency. And also, he suggested difference in panicle weights could be due differences in the panicle and seed size among genotypes.

Genotypes that avoid dehydration are characterized by the maintenance of high plant water status under stress and show any of the following features; early flowering, low leaf area, or limited tillering in cereals (Sarig and Okan, 1988). Yield is mainly a function of various components (Tarekegne, 2014). In sorghum selection of genotypes for yield based on plant developmental traits such as plant phenology (days to flowering and maturity), stay-green, leaf area, tillering, panicle size and peduncle exertions are conducive for drought tolerance in sorghum genotypes (Ali *et al*., 2011).

Jaybhaye *et al*. (2010) had studied on canopy temperature of different Rabi Sorghum genotypes under dry land condition and reported that mean number of days required for 50% flowering showed significant differences among the genotypes. General mean for 50% flowering was observed 64.9 days and Genotypes K-219, K-352, K-241 and K-606 flowered significantly earlier (57 days) and later flowered than other genotypes.

Lafarge *et al*. (2002) had reported significant difference in number of tillers among accessions and the number of fertile tillers per plant can vary from zero to around four depending on growing conditions and variety while the maximum numbers of tillers were in the genotype Sorcoll 163/07 and the check (Afeso). It is an important agronomical trait and it has a major impact on leaf area development of sorghum. Van Oosterom *et al*. (2011) reported that increased leaf area rate can reduce tillering and can hence confer drought adaptation in sorghum by restricting plant size and pre-anthesis water use. However, temperature effects on leaf number and tillering can negate this plant size effect.

Channappagoudar *et al*. (2007) had reported that genotype SPV 913, which gave a maximum grain yield had maximum HI and test weight with moderate accumulation of total dry matter and ear weight at maturity, whereas SPV 504 genotype was mainly attributed to lower HI. Similar results was reported by Chimmad and Kamatar (2003) that the genotypes with lower HI results in poor yields.

Steduto *et al*. (2012) had worked on crop yield response to water stress and reported that sorghum with its tillering habit is much less determinant than maize, and therefore is more ‘plastic’ in reproductive development. If short water stress during the panicle initiation stage, reduces the potential grain number of the main stem panicle, panicles on the tillers that are initiated later after the stress is over, can produce more grain and make up for much of the sorghum loss.

Manjarrez-Sandoval *et al*. (1989) had worked on drought stress effects on grain yield and panicle development of sorghum and indicated a severe soil moisture deficit at any time between panicle initiation and anthesis caused delay in the development of the shoot apex, whereas panicle development was unaffected by drought stress imposed during or after anthesis. Similarly, Craufurd *et al*. (1993) reported that stress increase the period between panicle initiation and flowering by retarding the rate of panicle development.

A severe post-flowering drought stress causes the reductions of seed weights and grain yield. Tuinstra *et al*. (1997) had studied genetic analysis of post-flowering drought tolerance and components of grain development in sorghum and reported that drought environment results in a 41% reduction in grain yield and a 7% decrease in seed weights relative to the fully irrigated environment.

Zelalem *et al* . (2015) reported that genotype Sorcoll 163/07 and Afeso results in high WUE could have favoured high assimilation and finally high grain yield under the studied drought-prone area. In addition, Sinclair and Jamieson (2008) suggested that the minimum grain yield per panicle of Sorcoll 146/07 genotype might be attributed to the lowest assimilation rate.

Khaton *et al*. (2016) had worked on effect of moisture stress on morphological and yield attributes of four sorghum varieties and stated that 1000 seed weights decreased as the stress increased from zero to severe level and grain number per panicle was also significantly affected by drought with a reducing trend. In comparison with the zero stress, decrease in 1,000 seed weights accounts for 9% and 19% in medium and severe str ess, respectively.

Shavrukov *et al*. (2017) had worked on early flowering as a drought escape mechanism in plants and reported that early flowering time and a shorter vegetative phase can be very important for wheat production in conditions of terminal drought since this can minimize exposure to dehydration during the sensitive flowering and post-anthesis grain filling periods.

### 2.4. Drought as a major constraint for Sorghum production

The adaptation mechanisms of sorghum to arid drought stress conditions such as delay in leaf rolling, partial opening of stomata, higher relative water content and higher water use efficiency contributes for tolerance of moderate drought in pre-flowering and post-flowering (Takele and Farrant, 2013). A primary mechanisms of sweet sorghum adaptability to drought is to reduce canopy transpiration while maintaining a certain photosynthetic level even at very low soil water potential and/or leaf water potential (Tari *et al*., 2013). Machado and Paulsen (2001) stated that sorghum has some mechanisms that help the plant cope with drought such as, the prolific root system, the ability to maintain stomatal opening at low levels of leaf water potential and high osmotic adjustment.

### 2.4.1. Drought tolerance

Drought tolerance in sorghum is a complex trait influenced by many genes coding for various traits contributing towards drought tolerance (Blum, 1979). Sorghum is the most drought tolerant crop which grows under small moisture content (Taylor *et al*., 2003). In sorghum depends on the plant developmental stage at the onset of the stress condition, which in sorghum may happen during the early vegetative seedling stage, during panicle development and in post flowering, in the period between grain filling and physiological maturity (Rosenow *et al*., 1996). Post-flowering drought adaptation in sorghum is associated with the stay-green phenotype, which is characterized by the maintenance of green stems and upper leaves under water limitation after flowering (Subudhi *et al*., 2000). Drought tolerant genotypes exhibit lower stomatal conductance associated with increased leaf temperature, which gives rise to high transpiration efficiency and lower carbon isotope discrimination. The drought susceptible genotypes, on the other hand, show higher stomatal conductance and lower leaf temperature results in lower transpiration rates (Link *et al*., 2007 and Krupa *et al*., 2017).

### 2.4.2. Drought avoidance

The drought avoidance mechanism avoids a low water status in tissues during water stress by maintaining cell turgor and cell volume (Subudhi *et al.,* 2002). Sorghum avoids dehydration by enhanced water uptake through its deep and extensive root system and tolerates dehydration by osmotic regulation (Wright and Smith, 1983; Singh, 1989). Salah (2013) had reported that avoidance is accomplished by decreasing water loss from the shoot or by more efficiently extracting moisture from the soil. Most sorghum genotypes have a thick waxy cuticle that limits water loss during periods of water deficit. A deep, extensive root system, with the ability to penetrate hard soil layers, is often associated with plants that are able to maintain water supply during periods of low available moisture.

As a C4 crop, sorghum possesses high TE and is well adapted to semi-arid environments (Rooney, 2004). The stomata regulation capacity of sweet sorghum further contributes to avoid excessive water loss by transpiration. Sorghum roots may grow to depths of 1 to 2 m by the booting stage and can efficiently extract water to a lateral distance of 1.6 m from the plant (Kemanian *et al.*, 2005). Higher transpiration rate under drought condition were shows that longer root length increase absorption of underground water to compensate the evaporative cost. Sorghum genotypes with low internal $CO_2$ concentration and enhanced photosynthetic capacity may be associated with high TE and High TE was strongly correlated with increased biomass accumulation (Xin *et al.*, 2009).

Schittenhelm and Schroetter (2014) had studied comparison of drought tolerance of maize, sweet sorghum and sorghum-sudan grass hybrids and reported that sorghum is a drought tolerant crop due to its ability to display morphological changes such as reduction in transpiration through leaf rolling and stomatal closure and lowering of metabolic processes to near dormancy in response to terminal stress.

Luna (2014) worked on evaluation of the photosynthetic efficiency of sweet sorghum under drought and cold conditions and stated that improved water use efficiency has been related to the presence of leaf epicuticular wax that reduce transpiration and water pressure but at the same time this has a direct effect on the diffusion of CO2 to the chloroplasts, on the ability of leaves to dissipate the excess energy as latent heat or increase mesophyll resistance, resulting in modifications in the photosynthetic apparatus functioning.

### 2.4.3. Drought escape

Drought escape relies on successful reproduction before the onset of severe stress. In this case, plants complete their life cycle before the most intense period of drought through increased metabolic activity and rapid growth (Geber and Dawson 1990). The plants combine short life cycles with high rates of growth and gas exchange, using maximum available resources while moisture in the soil lasts (Moony *et al.*, 1987). It involves rapid phonological development such as, early flowering and early maturity, developmental plasticity (variation in duration of growth period) and remobilization of pre-anthesis assimilates to grain.

However, cultivars that mature extremely early tend to be lower in yield because the plants have a shorter growth period to flower and store nutrients in the grain. Furthermore, early flowering during a drought shortened growing season presumably results in a relatively greater fitness through higher seed set or greater seed mass (Kooyers, 2015).

**2.5. Molecular Mechanism of sorghum drought tolerance**

The current research priority in sorghum is gene discovery for complex traits related to stresses by integrating high-throughput genotyping (genotyping by sequencing, GBS) and phototyping facilities with classical breeding methods and advanced computational and statistical tools and marker-assisted breeding (Perumal *et al*., 2016). The genetic variation of a quantitative trait is assumed to be controlled by the collective effects of quantitative trait loci (QTLs), epistasis (interaction between QTLs), the environment, and interaction between QTL and environment. Exploiting molecular markers in breeding involve finding a subset of markers associated with one or more QTLs that regulate the expression of complex traits.

QTL analysis indicated many loci that were associated with both rate and duration of grain development. High rate and short duration of grain development were generally associated with larger seed size, but only two of these loci were associated with differences in stability of performance under drought (Tuinstra *et al*., 1997). Sanchez et al. (2002) reported that the molecular genetics dissection of the QTLs affecting stay-green will provide further opportunities to elucidate the underlying physiological mechanisms involved in drought resistance in sorghum and other grasses. Vadez (2013) reported that the stay-green trait is regarded as the best characterized characteristic conferring drought adaptation in several crops including sorghum. Quantitative trait loci (QTLs) for stay-green have been identified using several bi-parental populations. Several of these QTLs are currently being used for introgression in a number of genetic backgrounds. Ngugi et al. (2013) reported that SSR markers assisted in the identification of true breeding F1, BC1F1 and BC2F1 progenies. In this, the results showed stay-green QTL and consequently drought tolerance can be transferred successfully in to farmer preferred sorghum varieties through MAB. Five F1, 20 BC1F1 and 19 BC2F1 genotypes incorporated two QTL of the stay-green trait that had double introgression are the ones likely to possess drought tolerance.

El Mannai *et al*. (2012) stated that positive additive effects suggested the alleles of SC112 contributed to the earliness of the flowering time of F2 plants. Furthermore, the small additive effects of individual QTLs indicated the complexity of the genetic control of flowering time in sorghum. A total of 19 QTLs for flowering time, 53 QTLs for maturity has been identified among the chromosomes of sorghum (Mace and Jordan 2011). The interaction of the QTLs controlling flowering time in sorghum with the photoperiod appears to be fundamental to the improvement of this crop. The physical positions for markers in QTL regions projected on the sorghum genome suggest that the previously detected gene, Ma5, had a major confounding impact on the expression of yield and stay green QTL( Sabadin *et al.*, 2012). Kapanigowda *et al.* (2014) identified 38 QTLs controlling variation in height, flowering, biomass, leaf area, greenness and stomatal density. Colocalisation of A:E QTLs with agronomic traits indicated that these QTLs can be used for improving sorghum performance through marker assisted selection (MAS) under pre flowering drought stress.

Fakrudin *et al.* (2013) reported positive association of root traits with seed yield per plant, indicating that the possibility to combine higher grain yield and desirable root morphological traits, favourably, to enhance productivity of sorghum under receding moisture condition. Madhusudhana (2014) reported that the availability of whole sorghum genome sequence resulted in development of thousands of SSRs, and identification of millions of SNPs leading to the construction of high-density linkage maps. Dense genetic maps contribute substantially to the fine mapping and positional cloning of important genes and provide a tool for gene discovery and allele mining. The information generated on genetic maps will be vital for sorghum improvement.

### 2.6. Breeding for Drought tolerance in Sorghum

The BCNAM design is multi-parental design that combines high resolution population development for genetic analysis of complex traits, genetic basis enlargement and direct breeding applications and to the use of advanced-backcross populations with an adapted elite recurrent parent (RP). Nested association mapping populations are developed by crossing multiple diverse founders to a common parent followed by the development of RILs or progenies in each family. It combines the power of linkage analysis with the high resolution of association mapping (Yu *et al.*, 2008). It can recover enough genotypes with appropriate height and maturity and elite alleles for important traits are at high frequency.

Drought tolerance is a complex quantitative character controlled by many genetic and environmental factors. BNAM is a powerful tool for understanding genetic variation across contributing parental lines in complex traits. Besides, it can increase genetic resolution, reduce linkage disequilibrium and control population structure via design (Song *et al.*, 2017). Futakuchi and Center (2013) on phenotyping the MARS populations for yield potential and drought tolerance, as well as promising lines in various environments they suggested that analyzing the BCNAM population data for both phenotypic and genotypic data and QTL detection in sorghum, varying and interesting lines will be available targeting dual purposes sorghum for food, feed and fodder if variety development and release are achieved.

### 2.7. Genetic variability, Heritability and Genetic advance

#### 2.7.1. Genetic Variability

Variability among individuals in a population occurs due to the differences in their genetic composition and the environment in which they are raised (Allard, 1960). Sorghum is believed to have a wide range of diverse genotypes. Plant genetic resources play an important role in generating new high yielding crop varieties with desired traits. Hence, the assessment of genetic variability in genotypes and relationship between traits are necessary step in breeding program. Success of any crop breeding program is based on the knowledge and availability of genetic variability for efficient selection (Shehzad and Okuno, 2014).

Genetic improvement for quantitative and qualitative traits depends on the nature and amount of variability present in the genetic stock, if desirable traits having high heritability more are the chances of improvement through selection (Bhagasara *et al.*, 2017). Ethiopian sorghum possesses wide range of genetic variability. Durrishahwar *et al*. (2012) showed significant variability for days to 50% flowering, leaf area and green forage yield, while the differences of smaller magnitude were observed for number of leaves.

Chavan *et al.* (2010) had worked on genetic variability of 20F5 families with four checks of sorghum and reported GCV and PCV was high for harvest index (36.10) followed by grain yield per plant (34.23), panicle width (27.67). And also, he observed the range of variation was highest for number of grains per panicle followed by grain yield per panicle, number of primary branches per panicle, harvest index, days to maturity, days to 50% flowering, test weights, panicle excertion and panicle width.

Shinde *et al*. (2010) had worked on genetic variability among the derived lines of F6 for yield attributing traits in rabi sorghum (*Sorghum bicolor* (L.) Moench) and reported that the mean sum of squares (MSS) were found to be highly significant for all the eleven characters among different groups (B x B, B x R and R x R derivatives), indicating greater distinctness among BxB, BxR and RxR derivatives of rabi sorghum and the genotypes under study were having high genetic variability.

Godbharle *et al*. (2010) had observed the genotypic variance was lower than the phenotypic variance for all the traits and high genotypic and phenotypic variance, heritability and genetic advance were observed for the traits panicle excertion, fodder yield, number of primary branches per panicle, grains per primary branches, harvest index and grain yield, indicated that additive gene effects were operating for these traits. Similarly, Kumar *et al*. (2011) had worked on the genetic variability in 29 segregating progenies of two inter specific crosses in F4 generation viz., Sorghum bicolor (cs3541) X Sorghum usumberense (Sb X Su) and Sorghum bicolor (cs3541) X Sorghum lewisonii (Sb X Sl) and reported that the relative magnitude of PCV was higher than the corresponding GCV for all the traits studied, which indicated that these traits are having interaction with environment.

Sankar *et al.* (2013) had worked on genetic variability and association studies in pearl millet for grain yield and high temperature stress tolerance and reported that highest phenotypic and genotypic coefficient of variation (PCV and GCV) was observed for number of productive tillers (37.15 and 36.91) followed by spike girth (21.99 and 21.84), respectively. The lower value of PCV and GCV was observed for days to maturity (4.26 and 4.19), respectively.

Dhutmal *et al*. (2014) had worked on variability parameters in 48 rabi sorghum drought tolerant genotypes and observed highly significant genotypic differences were observed for all the traits under study. The results depicted that phenotypic variances and PCVs were slightly higher than genetic variances and GCVs for all the traits. Similarly, Jain *et al*. (2012) studied genetic variability in land races of sorghum and reported genotypic coefficient of variation (GCV) was maximum for fodder yield per plant (36.78%) followed by panicle excertion (32.77%) and differences between GCV and PCV for days to 50% flowering, number of leaves per plant, leaf length, leaf breadth traits were also found to be less indicating that these traits were less affected by environmental fluctuations.

Verma (2015) had worked on characterization of sorghum (*Sorghum bicolor* (L.) Moench) germplasm and reported the estimates of phenotypic coefficient of variation (PCV) were slightly greater than corresponding genotypic coefficient of variation (GCV); indicating the role of environment in the expression of characters. And also, he reported that the chara cter grain yield per panicle showed the high value for both GCV and PCV. Garg *et al.* (2017) had worked on thirty three rice genotypes to assess their performance in terms of traits implicated in drought for yield and yield related traits and he reported that analysis of variance clearly indicated that there was highly significant variation among the genotypes for all the traits studied. This in turn indicated that there was sufficient variability in the material studied.

### 2.7.2. Heritability

Heritability can be defined, in broad sense, as the proportion of the genotypic variability to the total variance (Allard, 1996). It refers to the portion of phenotypically expressed variation, within a given environment and it measures the degree to which a trait can be modified by selection (Christianson and Lews, 1982). In the inheritance studies of quantitative traits, assessment of genotypic components was made from phenotypic value, which revealed both genetic and non genetic influences. Heritability estimates provide an indication of the expected response to selection in a segregating population. Heritability is interest to the plant breeders, mainly as a measure of the value of selection for particular traits and as an index of transmissibility.

Ayele (2011) had worked on heritability and genetic advance in recombinant inbred lines for drought tolerance and other related traits in sorghum and reported that traits such as head length, panicleexertion, stay-green and green leaf area at flowering showed a relatively high heritability values (>60%). The values estimated for stem thickness (cm), number of leaves/plant, days to 50% flowering and yieldper plant were moderate.

Vinodhana *et al*. (2009) studied on genetic variability and drought tolerant studies in sorghum and reported that these characters exhibited high heritability along with high genotypic co-efficient of variation indicating importance of additive genetic variance for these characters. The character days to 50% flowering recorded the lowest heritability estimate indicating larger influence of environmental conditions on these characters. Kenga *et al*. (2006) studied genetic and phenotypic association between yield components in hybrid sorghum populations and reported the heritability estimates ranged from 5% to 77%. The highest heritability estimates were obtained for traits in florescence length. In contrast, heritability estimates were low for reproductive traits (grain yield and threshability) where moderately high value were obtained for days to anthesis and seed mass.

Tesfamichael *et al*. (2015) worked on 25 sorghum landraces including 23 accessions from the Eritrean sorghum gene bank and two improved (B-35 and Hamelmalo) and reported that heritability in broad-sense was medium to high for most of the morpho-physiological traits. The highest heritability was recorded for days to flowering, days to maturity, number of leaves, panicle length and overall agronomic score traits while it was moderate for seedling vigour, grain yield, biomass, harvest index, peduncle exsertions and productive tillers. The lowest heritability was scored for panicle width and stay-green score. Kusalkar *et al*. (2009) studied variability in rabi sorghum genotypes and reported that the heritability in broad sense for 1000 seed weights, grain yield, number of leaves per plant, leaf width, internodes length, peduncle length and earhead length was highest. And also, he observed high heritability accompanied with high genetic advance was observed for grain yield, 1000 grain weights, number of leaves per plant, earhead length, leaf width, internodes length and peduncle length suggesting additive gene control in the inheritance of these traits and scope for selection in the improvement of these characters.

### 2.7.3. Genetic Advance

Improvement in the mean genotypic value of selected plants over the parental population is known as genetic advance. It is the measure of genetic gain under selection. In general, high heritability accompanied with high expected genetic advance for the traits suggest that the genes governing these traits may have an additive gene effect.

Prabhakar (2003) had worked on genetic variability and correlation studies in F2 population of rabi sorghum and reported that character days to 50% flowering had medium heritability with low genetic advance and they suggested that variations are attributed to high level of non additive gene effects and limited scope for selection.

Deepalakshmi and Ganesamurthy (2007) had reported that genetic advance as percent of mean was high for all the characters except days to maturity, breadth of leaf and earhead length, whereas moderate for days to maturity (11.79%) and earhead length (10.32%) and low for breadth of leaf (7.23%). Khandelwal *et al*. (2015) had studied on genetic parameters and character association in sorghum and reported that days to flowering, days to maturity and panicle excertion showed high heritability with low genetic advance, indicating that these traits are controlled by non additive gene action.

Sabiel *et al*. (2015) had worked on genetic variability and estimates of heritability in sorghum and reported that high genetic advance was found in 1000-grain weights and days to flowering; indicated that these characters were under the control of additive genetic effects.

### 2.8. Association of Characters

#### 2.8.1. Correlation coefficients

Knowledge of association between yield and its component traits and among the component p arameters themselves can improve the efficiency of selection in plant breeding. Correlation coefficient measures the mutual association between a pair of variables independent of other variables to be considered.

Patel *et al*. (1994) reported strong association of number of primary branches per panicle and 1000-seed weights with seed yield, whereas negative association exhibited with days to 50 % flowering and grain yield. And also, he stated that acute terminal stress in the later stages of development, especially the late maturing varieties fail to fill the sink ending up with lower panicle yield, and low seed weights because of shriveled seeds.

Ezeaku and Mohammed (2006) reported that there was significant and high positive correlation between grain yield and head weights (r=0.976), grain yield, 1000 grain mass (r= 0.522) and 1000 grain mass and head weights (r=0.528) and head weights had the highest direct effect on grain yield (0.961). On the other hand, significant negative correlation exists between panicle count and panicle excertion (r=-0.202). This indicates the compensation mechanism and trade-offs between this pair of traits in determining the panicle characteristics in sorghum.

Ezeaku *et al*. (2015) reported that head weights (r=0.958) significantly and positively correlated with grain yield at the 0.05 and 0.01 levels of probability while days to 50% flowering significantly but negatively correlated (r= -0.539) with grain yield. The negative but significant correlation of days to 50% flowering with grain yield shows that parental genotypes with shorter days to flowering tend to produce more grain yield and vice-versa. Thus, negative correlation indicates that it is not possible to improve both traits simultaneously depending on the intensity of linkage between the two traits. Jain and Patel (2014) reported that seed yield per plant showed positive and significant correlation with, number of leaves per plant and 100 seed weights.

Hamza *et al*. (2016) reported that there was positive and significant correlation of grain yield with leaf area, panicle excertion, 1000 seed weights and grain yield per plant. Therefore, selection for these traits can simultaneously improve potential grain yield and accumulate the desirable genes. However, the significant negative association of grain yield with flowering is indicate that delay in flowering is correlated with lowest grain yield. Therefore, sorghum improvement will benefit from this wide range of diversity and genotypes exchange will be the key to the success of improving sorghum genotypes as a source for grain.

Da Silva *et al*. (2017) had worked on 160 sorghum elite genotypes for contribution of morpho-agronomic traits to grain yield and earliness in grain sorghum and reported that there was a positive and significant phenotypic correlation between the traits. These results initially indicated that panicle weights can be used as the selection criteria for sorghum genotype with high grain yield. However, to use these traits as the indirect selection criteria, it is necessary to verify if there is a cause and effect relationship between them. Badigannavar *et al*. (2017) reported that seed weights, days to flowering, panicle width and leaf area had significant ($P \leq 0.01$) correlation with grain yield and seed weights was positively correlated with panicle width correlation coefficient (0.31), while negatively correlated with panicle excertion correlation coefficient (-0.15).

Bhakad (2018) had worked on variability and correlation for yield and its components in sorghum (*Sorghum bicolor* (L.) Moench) and reported that significant and positive correlation of grain yield was observed by panicle excertion, number of primaries per plant, fodder yield per plant and 100 seed weights.

### 2.8.2. Path analysis

Path coefficient analysis initially allows partitioning of correlation coefficient into direct and indirect contributions (effects) of various traits towards dependent variable and thus helps in assessing the cause effect relationship as well as effective selection. The path coefficient analysis initially suggested by Wright (1960) and described by Dewey and Lu (1959) allows partitioning of correlation coefficient into direct and indirect contributions (effects) of various traits towards dependent variable and thus helps in assessing the cause effect relationship as well as effective selection. A positive genetic correlation between two desirable traits makes the job of the plant breeder easy for improving both traits simultaneously. When there is positive association of major yield characters component breeding would be very effective but when these characters are negatively associated, it would be difficult to exercise simultaneous selection for them in developing a variety (Nemati *et al.*, 2009).

Tag El-Din *et al.* (2012) studied path coefficient and correlation assessment of yield and yield associated traits in sorghum genotypes and reported that path analysis showed that panicle excertion had low but positive direct effect on grain yield (0.01), whereas number of kernels/head had high positive direct effect on grain yield (0.9977) and positive indirect effect was through days to flowering (0.0033), panicle excertion (0.0002), panicle width (0.0013) and panicle internodes (0.0002), whereas its indirect effect was negative through leaf area (0.0002) and 1000 seed weights (0.0824).

Kumar (2013) reported that days to 50% flowering, ear head length and test weights had positive direct influence on yield at both genotypic and phenotypic level. Sayed (2016) reported that under drought conditions, panicle weights showed positive direct effect on grain yield/plant and suggested that among yield components, panicle weights and threshing percentage were critical for maintaining yields under drought conditions.

Mumtaz *et al*. (2017) reported that the low level direct effect of days to 50% flowering on grain yield was cancelled out by its indirect effect on all other traits; thus, the genotypic correlation with grain yield was not significant and the overall contribution of the other indirect effects were sufficient to cancel out the direct effect, meaning that the genotypic correlation was not significant. Rajput (2017) reported that genotypic and phenotypic path analysis showed 1000 seed weight registered the maximum positive direct effect while total number of leaves had also positive direct effect.

### 2.9. Principal Component Analysis (PCA)

Principal component analysis (PCA) involves a mathematical procedure that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called principal components. PCA is the simplest of the true eigenvector-based multivariate analyses. The central idea of PCA is a dimension reduction tool that can be used to reduce a large set of variables to a small set that still contains most of the information in the large set. It provides variable independence and balanced weighting of traits, which leads to an effective contribution of different traits on the basis of respective variation (Mohammadi and Prasanna, 2003). The first principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible.

Mahajan *et al*. (2010) had studied genetic diversity in sorghum (*Sorghum bicolor* L. Moench) and reported that grain yield per panicle, days to 50% flowering, number of primary branches per panicle and number of grains per panicle showed maximum contribution towards divergence and showed genotypes included in the clusters were genetically diverse and give broad spectrum of variability in segregating generations. Seetharam and Ganesamurthy (2013) reported that the importance of the first three principal components (PCs) in discriminating the entire germplasm. The PC-I is the most important component accounted for 52.07 percent with five latent roots. The PC-I separates the accessions on 5 traits viz., days to 50 per cent flowering, leaf length, leaf width and single plant yield, which indicates the contribution of these traits to wards the phenotypic variation of the genotypes under study.

Tesfamichael (2015) had worked on genetic diversity and post flowering drought tolerance analysis of Eritrean sorghum and found that the first 4, out of the 7 PCs explained majority of the total variation which contributed 74.6% with eigen-value >1 among the sorghum genotypes assessed for various morpho-physiological traits. The most important characters in PC-I was due to variations among the accessions mainly for days to 50% flowering, days to maturity, harvest index, peduncle exsertion and panicle excertion. Besides, days to flowering, days to maturity and panicle excertion had considerable positive factor loadings on PC-

I. Similarily, the PC- II was related to diversity among sorghum genotypes due to specific biomass, grain yield, seedling vigour, stay-green and leaf area.

Jain *et al*. (2016) reported that the first three main PCs are extracted from the complicated nine components, the total cumulative variance of these first three principal components (PC-I, PC-II and PC-III) accounted for 70.89% of the total variation. The Eigenvectors decreased significantly from principal component II from 16.17% to 11.97% which suggested after principal component III more principal components did not describe much variation.

Tesfaye (2017) had worked on genetic diversity study of sorghum and reported that the first four principal components (PCs), with eigen value greater than 1, explained about 71.9% of the total variation among accessions for all traits. Leaf number was the most important contributing traits for the relative magnitudes of eigenvectors for the first principal component which, was 26.9% of total variance while the second principal component (PC-II) had high contributing factor loading from panicle length, grain yield and days to flo wering, which was 18.9% of total variance.

# 3. MATERIALS AND METHODS

## 3.1. Description of the Experimental Site

The field experiment was conducted at Meiso (Western Harerge) during 2017 cropping season. Meiso research, substation of Melkassa research center is located at 8º30´N latitude and 39º21´E longitude with an altitude of 1470 meter above sea level (m.a.s.l). It is 301km away from Addis Ababa. Meiso has a mean annual temperature ranging between 14ºC and 31.01 ºC and average annual rainfall is 763 mm, whereas during the trial was 465 mm. Weather conditions during the cropping season is presented in Appendix Table 1. The soil type of the study area is dominantly vertisols, well-drained clay, with an average pH of 7-8.6.

## 3.2. Plant Materials

The genotypes in this study comprised of 1464 BCNAM (BC1F4) progenies, 14 parents and two checks (local and standard). Thirteen (13) ICRISAT genotypes were crossed to Ethiopian elite variety (Teshale), then backcrossed once to Teshale and the backcross progenies were selfed successively to produce BC1F4 population. The population was developed at Jimma University. The list of parental lines used to develop the BC1F4 population is given in Table 1.

**Table 1. List of parental lines and their target traits**

| Genotype | Target Trait | Genotype | Target Trait |
|---|---|---|---|
| IS2205 | $H_2O$ ext. | IS32234 | HI |
| IS3583 | TE | IS10876 | TE |
| IS9911 | HI | IS14298 | HI |
| IS14556 | TE | IS14446 | $H_2O$ ext. |
| IS16044 | TE | IS15428 | TE |
| IS16173 | TE | IS23988 | $H_2O$ ext. |
| IS22325 | TE | | |

Notes: H2O ext. = Water extraction, TE= Transpiration efficiency and HI= Harvest index

### 3.3. Experimental Design and Trial Management

The experiment was laid out in an alpha lattice incomplete block design with two replications, seventy four blocks and twenty genotypes per block. Each entry was sown in a plot consisting of single row of 3m length with a spacing of 75 cm between rows and 20 cm between plants.

A recommended fertilizer rate of 100 kg Diammonium phosphate (DAP) and 50 kg urea per hectare were applied. DAP was applied by incorporating into the soil during sowing the seeds followed by a side dressing of urea 30 days after sowing the seeds. Thinning was conducted after three weeks of sowing to maintain the plant distance and to balance the plant density. Pesticide was applied when necessary to protect against shoot fly with a rate of 1mm per letre of water. Other agronomic practices such as weeding were followed uniformly for all plots.

### 3.4. Statistical Data collection

At anthesis, 5 plants per plot were tagged randomly for data collection and data was collected on the following quantitative traits as per the sorghum descriptors (IBPGR/ICRIS AT, 1993).

**Days to 50% flowering:** recorded as number of days from the date of emergence to the date when 50% of the plants were produced flowers per plot by observing when the flowering of the sessile spikelets was halfway through on the inflorescence.

**Total number of tillers**: numbers of basal tillers were counted from five plants randomly per plot.

**Number of leaves per plant:** total numbers of leaves were recorded from main stem randomly from five plants per plot after flowering.

**Panicle excertion (cm)**: the length of the node between the flag leaf and the base of the panicle was measured in cm from 5 plants randomly at maturity.

**Days to maturity (days):** days to maturity was recorded at the date from emergence to the date when 95% of the plants were physiologically matured per plot.

**Leaf senescence score**: leaf senescence was recorded by visual ratings on a scale of 1 to 5 based on the degree of leaf death at physiological maturity on a plot basis as: 1= Very slightly senescent (10%), 2= slightly senescent (25%), 3= Intermediate (50%), 4= Mostly senescent (75%) and 5 = completely senescent (100%).

**Panicles per plant**: total numbers of panicles per plant were recorded from five randomly selected plants per plot at maturity to identify productive and non productive tiller.

**Number of Panicles**: total number of panicles per plot were counted after harvest to determine each panicle weight from a total panicle weights.

**Panicle weight (g)**: panicles were harvested per plot from five randomly selected plants and the average weights was recorded.

**1000 seed weight (g)**: the average weights in grams of 1000 grains drawn from the grain yield of five randomly selected plants was taken.

**Grain weight per panicle (g)**: the weights of grain per panicle was weighed from 5 panicles per plot.

**Panicle harvest index:** estimated as the ratio of grain weights to panicle weights. It was computed from five randomly selected plants per plot for panicle weights and grain weight per panicle.

### 3.5. Data Analysis

#### 3.5.1. Analysis of Variance (ANOVA)

Analysis of variance was carried out using the PROC GLM procedure of SAS (version 9.3) by evaluating genotype effects for the environment. Genetic parameters were estimated to identify genetic variability among accessions and determine genetic and environmental effects on different traits. Genotypic ($\sigma^2 g$), phenotypic ($\sigma^2 p$) and error ($\sigma^2 e$) variances were calculated for each trait from the pooled ANOVA Table.

The model used for alpha lattice design was:

yijk=μ + τi + ρj + βjk + eijk

Where: yijk denotes the value of the observed trait for $i^{th}$ treatment received in the $k^{th}$ block within $j^{th}$ replicate (super block),

μ = over all mean

τi = fixed effect of the $i^{th}$ treatment (i = 1,2,…,t)

ρj =effect of the jth replicate (super block) (j = 1,2,…,r);

βjk= effect of the $k^{th}$ incomplete block within the jth replicate (k = 1,2,…s)

eijk = an experimental error associated with the observation of the ith treatment in the k-$^{th}$ incomplete block within the $j^{th}$ complete replicate.

Least Significant Difference Test (LSD) was used to calculate the means which showed significant differences among genotypes for all traits.

### 3.5.2. Analysis of genetic variability

#### 3.5.2.1. Genotypic coefficient of variance

The genotypic variance components and genotypic coefficients of variation (GCV%) was estimated based on the method suggested by Burton and De Vane (1953).

$$\text{Genotypic variance}(\sigma^2 g) = \frac{MSg - MSe}{r}$$

$$\text{Environmental variance}(\sigma^2 e) = MSe$$

$$\text{Genotypic coefficient of variation (GCV)} = \frac{\sqrt{\sigma^2 g}}{\bar{X}} * 100$$

Where, r = number of replications

MSg = mean square due to genotypes and

MSe = mean square of error (environmental variance)

$\bar{x}$ = Mean of the traits being evaluated

#### 3.5.2.2. Phenotypic coefficient of variance

The phenotypic variance components and phenotypic coefficient of variation (PCV%) was estimated based on the method suggested by Burton and De Vane (1953).

$$\text{Phenotypic variance (PV)} = \sigma^2 g + \sigma^2 e$$

$$\text{Phenotypic coeffeceint of variation (PCV)} = \frac{\sqrt{\sigma^2 p}}{\bar{X}} * 100$$

Where, $\sigma^2 p =$ Phenotypic variance

$\sigma^2 g =$ Genotypic variance

PCV= Phenotypic coefficient variation

$\overline{X}$ = Mean of the traits being evaluated

GCV and PCV value were categorized as low, moderate and high value as indicated by Deshmukh *et al*. (1986) as follows:

0-10% - Low

10-20% - Moderate

20% and above- High

### 3.5.3. Broad sense heritability

Heritability ($Hb^2$) in broad sense for all traits was calculated using the formula given by (Allard, 1999).

$$Hb^2 = \frac{\sigma^2 g}{\sigma^2 p} * 100$$

Where, $H^2b$= heritability in broad sense, $\sigma^2 p$= Phenotypic variance $\sigma^2 g$ = Genotypic variance Heritability percentage categorized as low, moderate and high as given by Johnson *et al*. (1955):

0-30%- low

30-60% -moderate

60% and above high

### 3.5.4. Genetic advance under selection

Expected genetic advance for each trait at 5% selection intensity was estimated with the formula described in (Allard, 1999) as follows:

$$GA = K * \sigma p * H^2$$

Where, GA= expected genetic advance, K=constant (selection differential where K=2.056 at 5% selection intensity), σp=phenotypic standard deviation on mean basis, heritability in broad sense. Genetic advance as percent of mean (GAM) was calculated to compare the extent of predicted advance of different traits under selection, using the following formula:

$$GAM = \frac{GA}{\overline{X}} * 100$$

Where, GAM=genetic advance as percent of mean, GA=genetic advance under selection,

$\overline{X}$ = mean of the population in which selection is operative.

Genetic advance as percent of the mean was categorized as low, moderate and high following (Johnson *et al*., 1955) as follows:

0-10% - Low

10-20%- Moderate

Above 20%- High

### 3.5.5. Correlation analysis

Phenotypic correlation (the observed correlation between two variables, which includes both genotypic and environmental components between two variables) and genotypic correlation was computed following the method described in (Johnson *et al*., 1955) and (Singh and Chaudhury, 1996)

$$rpxy = \frac{pcov\,x.y}{\sqrt{\sigma^2 px.\sigma^2 py}} \qquad rgxy = \frac{gcovx.y}{\sqrt{\sigma^2 gx.\sigma^2 gy}}$$

Where, rpxy and rgxy are phenotypic and genotypic correlation coefficients, respectively; pcovx.yand gcovx.y are phenotypic and genotypic covariance between variables x and y, respectively; $\sigma^2$px and $\sigma^2$gx are phenotypic and genotypic, variances for variable x; and $\sigma^2$py and $\sigma^2$gy are phenotypic and genotypic variances, respectively.

### 3.5.6. Path coefficient analysis

Path coefficient analysis was conducted as proposed by Dewey and Lu (1959) using the phenotypic as well as genotypic correlation coefficients. rij= Pij + Σrikpkj; Where: rij = Mutual association between the Pij = Component of direct effects of the independent trait (i) on the dependent variable (j) as measured by the path coefficient and, Σrikpkj = Summation of components of indirect effect of a given independent trait (i) on the given dependent trait

(j) via all other independent traits (k). The residual effect (U) was calculated using the formula:

$$U = \sqrt{1 - R^2}$$

### 3.5.7. Principal component analysis

Principal components analysis (PCs) with correlation matrix method was performed using SAS 9.3 and PCs with eigen-values greater than 1 were selected to determine the number of PCs, as proposed by Jeffers (1967).

# 4. RESULTS AND DISCUSSION

## 4.1. Analysis of variance

Analysis of variance revealed highly significant difference ($p<0.01$) among genotypes for all traits studied (Appendix Table 2), indicating the presence of considerable amount of variability among the study materials. Hence, the study materials comprised of diverse parents and one common parent(recurrent parent) in the population.

## 4.2. Mean values of BC1F4 genotypes

The mean performance of all genotypes is presented in Appendix Table 3.

### 4.2.1. Crop phenology

Mean value of days to flowering was 85.15 days. The shortest date to flowering was recorded by genotype 1063 followed by 253, 386, 413, 472 and 1441 with 64.5 days, 66.5 days, 67 days, 68 days, 68.5 days and 68.5 days, respectively, which were significantly different compared to the two checks and recurrent parent. Late flowering was recorded by genotype 576 and 399 with 105 days and 100.5 days, respectively followed by 1464, 1288, 1270, 786, 673 and 636 that took equal 100 days. From the top 15 early flowered genotypes, six (6) genotypes namely, 253, 413, 508, 763, 510, 50 were significantly different compared to Dakaba (check) while two genotypes: 253, 763 showed significant difference compared to recurrent parent in terms of yield.

Table 2. Mean values of BC1F4 sorghum genotypes of the top 15 and bottom 15 for 4 traits evaluated at Meiso in 2017

| Genotypes | GYP(g) | Genotypes | DF(days) | Genotypes | DM(days) | Genotypes | PHI |
|---|---|---|---|---|---|---|---|
| Top 15 genotypes | | | | | | | |
| 660(Teshale×22325) | 131.50 | 1063(Teshale×3583) | 64.50 | 386(Teshale×15428) | 113.00 | 401(Teshale×15428) | 0.97 |
| 10(Teshale×14446) | 128.51 | 253(Teshale×10876) | 66.50 | 413(Teshale×15428) | 113.00 | 380(Teshale×15428) | 0.96 |
| 141(Teshale×14446) | 127.41 | 386(Teshale×15428) | 67.00 | 510(Teshale×15428) | 113.00 | 232(Teshale×10876) | 0.95 |
| 494(Teshale×15428) | 122.30 | 413(Teshale×15428) | 68.00 | 1062(Teshale×3583) | 113.00 | 349(Teshale×10876) | 0.95 |
| 970(Teshale×3583) | 121.44 | 472(Teshale×15428) | 68.50 | 304(Teshale×10876) | 114.50 | 475(Teshale×15428) | 0.94 |
| 905(Teshale×16173) | 120.74 | 1441(Teshale×32234) | 68.50 | 995(Teshale×3583) | 114.50 | 249(Teshale×10876) | 0.93 |
| 118(Teshale×14446) | 120.62 | 502(Teshale×15428) | 71.00 | 218(Teshale×10876) | 115.00 | 208(Teshale×10876) | 0.90 |
| 1089(Teshale×3583) | 119.91 | 742(Teshale×14298) | 71.00 | 367(Teshale×15428) | 115.00 | 390(Teshale×15428) | 0.90 |
| 1200(Teshale×9911) | 116.42 | 508(Teshale×15428) | 72.00 | 412(Teshale×15428) | 115.00 | 814(Teshale×14298) | 0.90 |
| 557(Teshale×22325) | 114.92 | 763(Teshale×14298) | 72.00 | 444(Teshale×15428) | 115.00 | 1437(Teshale×32234) | 0.90 |
| 150(Teshale×14446) | 114.47 | 1062(Teshale×3583) | 72.00 | 504(Teshale×15428) | 115.00 | 24(Teshale×14446) | 0.89 |
| 313(Teshale×10876) | 114.47 | 50(Teshale×14446) | 73.00 | 543(Teshale×22325) | 115.00 | 474(Teshale×15428) | 0.89 |
| 383(Teshale×15428) | 113.22 | 61(Teshale×14446) | 73.00 | 742(Teshale×14298) | 115.00 | 1277(Teshale×23988) | 0.89 |
| 748(Teshale×14298) | 110.98 | 214(Teshale×10876) | 73.00 | 992(Teshale×3583) | 115.00 | 245(Teshale×10876) | 0.88 |
| 1088(Teshale×3583) | 110.93 | 510(Teshale×15428) | 73.00 | 1245(Teshale×23988) | 115.00 | 1354(Teshale×14556) | 0.88 |
| Bottom 15 genotypes | | | | | | | |
| 1021(Teshale×3583) | 17.65 | 1278(Teshale×23988) | 98.00 | 1232(Teshale×23988) | 132.00 | 1270(Teshale×23988) | 0.48 |
| 1436(Teshale×32234) | 17.21 | 1368(Teshale×14556) | 98.00 | 1278(Teshale×23988) | 132.00 | 1113(Teshale×9911) | 0.47 |
| 1333(Teshale×2205) | 16.63 | 1403(Teshale×16044) | 98.00 | 1464(Teshale×32234) | 132.00 | 56(Teshale×14446) | 0.46 |
| 56(Teshale×14446) | 14.55 | 1381(Teshale×16044) | 98.50 | 5553(Teshale×22325) | 132.50 | 1405(Teshale×16044) | 0.46 |
| 399(Teshale×15428) | 14.16 | 113(Teshale×14446) | 99.00 | 890(Teshale×16173) | 132.50 | 1226(Teshale×23988) | 0.43 |
| 1161(Teshale×9911) | 13.82 | 924(Teshale×16173) | 99.00 | 752(Teshale×14298) | 133.00 | 636(Teshale×22325) | 0.42 |
| 1226(Teshale×23988) | 12.81 | 54(Teshale×14446) | 99.50 | 776(Teshale×14298) | 133.00 | 1301(Teshale×2205) | 0.41 |
| 1462(Teshale×32234) | 12.38 | 636(Teshale×22325) | 100.00 | 1088(Teshale×3583) | 133.00 | 1388(Teshale×16044) | 0.41 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1232(Teshale×23988) | 10.57 | 673(Teshale×22325) | 100.00 | 55(Teshale×14446) | 133.50 | 1168(Teshale×9911) | 0.35 |
| 1278(Teshale×23988) | 10.17 | 786(Teshale×14298) | 100.00 | 28(Teshale×14446) | 134.00 | 399(Teshale×15428) | 0.29 |
| 1308(Teshale×2205) | 8.90 | 1270(Teshale×23988) | 100.00 | 824(Teshale×14298) | 134.00 | 1105(Teshale×3583) | 0.27 |
| 636(Teshale×22325) | 8.14 | 1288(Teshale×2205) | 100.00 | 399(Teshale×15428) | 135.00 | 1278(Teshale×23988) | 0.24 |
| 1464(Teshale×32234) | 7.12 | 1464(Teshale×32234) | 100.00 | 576(Teshale×22325) | 136.00 | 1308(Teshale×2205) | 0.13 |
| 1358(Teshale×14556) | 6.57 | 399(Teshale×15428) | 100.50 | 741(Teshale×14298) | 136.00 | 1358(Teshale×14556) | 0.07 |
| 552(Teshale×22325) | 1.87 | 576(Teshale×22325) | 105.00 | 1277(Teshale×23988) | 137.00 | 552(Teshale×22325) | 0.03 |
| | | | Parents and checks | | | | |
| IS14446 | 42.05 | | 86.50 | | 127.00 | | 0.73 |
| IS10876 | 57.87 | | 86.00 | | 124.00 | | 0.81 |
| IS15428 | 63.49 | | 84.00 | | 122.00 | | 0.79 |
| IS22325 | 59.94 | | 79.50 | | 121.00 | | 0.80 |
| IS14298 | 63.53 | | 84.50 | | 122.00 | | 0.85 |
| IS16173 | 71.13 | | 81.00 | | 118.50 | | 0.79 |
| IS3583 | 49.22 | | 82.50 | | 117.00 | | 0.76 |
| IS9911 | 39.24 | | 90.00 | | 122.50 | | 0.79 |
| IS23988 | 65.83 | | 85.00 | | 128.00 | | 0.78 |
| IS16044 | 76.98 | | 88.00 | | 119.50 | | 0.86 |
| IS32234 | 16.57 | | 78.00 | | 117.00 | | 0.79 |
| Teshale | 44.35 | | 84.00 | | 120.00 | | 0.56 |
| Local check(Jebyes) | 70.79 | | 91.00 | | 134.00 | | 0.72 |
| Standard check(Dakaba) | 21.19 | | 85.50 | | 117.50 | | 0.54 |
| Minimum | 1.87 | | 64.50 | | 113.00 | | 0.03 |
| Maximum | 131.50 | | 105.00 | | 137.00 | | 0.97 |
| Mean | 54.13 | | 85.08 | | 122.66 | | 0.75 |
| LSD(0.05) | 37.51 | | 10.73 | | 8.39 | | 0.16 |
| CV(%) | 32.26 | | 5.87 | | 3.18 | | 9.92 |

DF= Days to flowering, DM= Days to maturity, GYP = Grains yield per panicle, PHI= Panicle harvest index LSD(0.05)= Least significance difference at 5% , CV%= Coefficient of varion

Mean value of days to maturity was 122.66 days. The earliest days to maturity was recorded by genotype 386, 413 , 510 and 1062 which matured in 113 days followed by 304 and 995 which was 114.5 days and were significantly different compared to local check (Jebyes) and statistically similar with Dakaba and Teshale (RP). On the contrary, the latest date of maturity was recorded by genotype 1277, 741, 576, 399, 824 and 28 with 137 days, 136 days, 136 days,135 days,134days and 134days, respectively which were statistically similar to Jebyes (Local check). The top 15 early matured genotypes showed statistically similar values compared to recurrent parent and out of fifteen: 413, 510, 444, 1245 were significantly different compared to Dakaba in terms of grain yield per panicle.

#### 4.2.2. Growth parameters

Mean value of leaf senescence was 2.8. Genotypes showed significant difference in their senescence. Fifty five (55) genotypes showed green (10% leaf senescent) including two parents (IS16044 and IS10876) and Teshale. Out of these, only three genotypes: 970, 313, 10 88 showed significant difference compared to the two checks and recurrent parent in terms of grain yield per panicle. Interestingly their target trait (genetic back ground) was high transpiration efficiency. So, selection could be effective for these genotypes for further improvement under drought stress condition as stay green is the most important character for drought tolerance. Stay green in sorghum is characterized by the plant's ability to tolerate post flowering drought stress by restricting pre-anthesis plant size, delaying the premature leaf and conserving water for post-anthesis grain growth (Subudhi *et al.*, 2000 and Borrell *et al.*, 2014).

#### 4.2.3. Yield and yield components

Mean value of panicle weight was 71.48g. The highest panicle weights was recorded by 1301 followed by 748, 1105, 659 and 556 with 287.13g, 197g, 195g, 183.69g and 170.6g, respectively; these genotypes had significantly different values compared to the three checks except 1301 and 1105. However, the lowest panicle weights were recorded by 1464, 1462, 635, 1161 and 1232 with 10, 16.25, 19.25, 19.4 and 21.17, respectively. In sorghum the potential grain number is determined during the stage of floral initiation and inflorescence development and water stress during this stage results in substantial reduction in number of seeds per panicle thereby reduce panicle weights and grain yield per panicle. This might explain the significant difference on mean panicle weights among genotypes.

Mean value of panicle harvest index was 0.75. The highest was recorded by genotype 401 followed by 380, 232, 349 and 475 with 0.97, 0.96, 0.95, 0.95 and 0.94, respectively while the minimum was by genotype: 552, 1358, 1308, 1278 and 1105 with 0.03, 0.07, 0.13, 0.24 and 0.27, respectively. The top 15 genotypes with the highest panicle harvest index were statis tically similar with Jebyes (local check), whereas out of 15, five genotypes 232, 475, 208, 24 and 1354 performed better than Dakaba and Teshale in grain yield per panicle. Higher PHI indicates better performance of the genotypes in grain yield per panicle under moister stress condition. Hence, it is a very important parameter to be considered in the evaluation of genotypes under moister stress condition.

Yadav *et al.* (2004) worked on genomic regions associated with grain yield and aspects of post flowering drought tolerance in pearl millet and reported that both harvest index and panice harvest index were associated with increased drought tolerance. In this study, genotypes that have high panicle harvest index had mostly high transpiration efficiency while some had good harvest index in their genetic background.

Mean value for 1000 seed weight was 20.76g. The highest thousand seed weight was recorded by genotype 91 followed by 121, 7, 73 and 817 with 38.95g, 38.01g, 37.90g, 37.83g and 37.23g. Whereas the lowest was recorded by 1028, 288, 636, 56 and 1011 with 1.43g, 7.495g, 9.87g, 10.02g and 10.4, respectively. For thousand seed weight (1000 SW) of the top 15 genotypes, eight (8) showed significant difference compared to the two checks and recurrent parent.

In terms of grain yield, six genotypes: 91, 73, 130, 1434, 10 and 161 of the top 15 (in 1000 SW) genotypes showed significant difference compared to Dakaba but only one genotype; 10 showed significant difference compared to Teshale and Jebyes (local check). Borrell *et al.* (2000) reported that improved seed weight was one of the traits associated with post-flowering drought tolerance. Yield reduction occurs as a result of reduced seed weight. This probably is because of seed weight is a function of both seed size and degree of seed filling and moisture stress affect both these yield determining traits. Acute terminal stress in the later stages of development, especially in the late maturing varieties affects grain filling, ending up with lower panicle yield, and low seed weight because of shriveled seeds (Patel *et al.*, 1994).

Mean value of grain yield per panicle was 54.27g. The maximum grain yield was recorded by genotypes 660 followed by 10, 141, 494 and 970 with grain yield of 131.5g, 128.51g, 127.41g, 122.3g and 121.4g, respectively; showed significant difference compared to the two checks and recurrent parent. However, the minimum was recorded by 552, 1358, 1464, 636 and 1308 with 1.87g, 6.57g, 7.12g, 8.14g and 8.90g, respectively. The high yield performance of the top genotypes might be because of their genetic background like good water extraction capacity and transpiration efficiency which can increase assimilation rates. Hence, these genotypes can be further advanced for grain yield improvement in the drought prone areas. Zelalem *et al*. (2015) reported that genotype with high WUE could have favoured high assimilation and finally high grain yield under drought prone areas.

Most of the high yielding genotypes were early flowering and maturing types which might have helped them to escape the effects of late water stress while relatively low yielding genotypes were late maturing. Thus, such traits can be considered as ways of drought escape mechanism and be used for selection. In principle late mature genotypes perform better as Ludlow and Muchow (1990) pointed out that late flowering varieties tend to yield higher than early flowering ones. However, for any given stress environment, there might be a balance between yield loss and water use economy as associated with earliness. Craufurd and Peacock (1993) concluded that the genotype performance in water limited environments was strongly related to phenology. Blum (1970) documented the advantage of grain yield associ ated with early maturity for dry land sorghum grown in Mediterranean climate. Kooyers (2015) reported that early flowering during a drought shortened growing season presumably results in a relatively greater fitness through higher seed set or greater seed mass.

In addition, early flowered genotypes showed increased grain filling duration compared to late flowered genotypes which can be recognized as an important factor in the determination of grain yield. Evans (1975) reported that grain yield per panicle under water stress represents an integrated response of genotype to both grain set and grain filling. Kadam *et al*. (2002) showed that early maturing genotypes escape terminal stress by utilizing the maximum stored water.

In the present study, parents showed significant difference among each other. The better yielder parents were: IS16044 (76.98g), IS16173 (71.14g) (had high transpiration efficiency in their genetic background) followed by IS23988 (65.83g) (had water extraction capacity), IS14298 (63.53g) (had high harvest index) and IS15428 (63.49g) (had high transpiration efficiency). These genotypes had better thousand seed weight, panicle harvest index and they were medium flowering. Hence, consideration should be given to these parents for further sorghum improvement.

### 4.3. Estimates of variance components

#### 4.3.1. Estimates of phenotypic and genotypic coefficients of variation

The parameters of genetic variability viz, mean, range, phenotypic variance, genotypic variance, phenotypic coefficient of variation (PCV) and genotypic coefficient of variation (GCV) with respect to all traits is presented in Table 3. The wide range value was recorded for panicle weight (10-287.13) followed by grain yield per panicle (1.87-131.4), days to flowering (64.5-105), panicle harvest index (0.03-0.97), thousand seed weight (1.43-38.94). However, the lowest range was for number of leaf (6-14), leaf senescence (1-5), number of tillers (0.2-2.03). The existence of wide range indicates the wide genetic variation of the genotypes for the traits. Thus, it is important for improvement of genotypes by selection. Chavan *et al*. (2010) studied genetic variability in F5 genotypes of rabi sorghum and reported that wide range of variation among genotypes for grain yield per panicle, harvest index, days to 50% flowering and test weight.

The results revealed that the estimates of phenotypic coefficients of variation (PCV) was slightly higher than those of genotypic coefficient of variation for all the traits studied, which indicates these traits are having interaction with environment. Similar findings reported by Kumar *et al*. (2011) who worked on the genetic variability in 29 segregating progenies in F4 generation. The extent of the environment influence on traits is explained by the magnitude of the difference between GCV and PCV. Magnitude of differences was large for number of tiller, panicle excertion, leaf senescence, panicle weight and grain yield per panicle, indicates high environmental influence on the expression of a traits practically impossible to exercise selection.

Table 3. Estimates of parameters of variability in BC1F4 sorghum evaluated at Meiso in 2017

| Traits | Mean±SD | Range | $\sigma^2$p | $\sigma^2$g | PCV(%) | GCV(%) | $Hb^2$ (%) | GA | GAM(%) |
|---|---|---|---|---|---|---|---|---|---|
| **DF** | 85.08±4.93 | 64.5-105 | 29.50 | 04.56 | 06.38 | 02.51 | 15.44 | 01.73 | 02.03 |
| **NT** | 0.96±0.232 | 0.2-2.03 | 00.07 | 00.01 | 27.94 | 08.09 | 08.39 | 00.05 | 04.83 |
| **NL** | 9.96±0.99 | 6-14 | 01.10 | 00.38 | 10.53 | 06.19 | 34.55 | 00.75 | 07.49 |
| **PL** | 2.53±5.12 | 0-29.38 | 01.12 | 00.41 | 41.74 | 25.15 | 36.32 | 00.79 | 31.23 |
| **DM** | 122.66±3.84 | 113-137 | 17.56 | 02.30 | 03.42 | 01.24 | 13.07 | 01.13 | 00.92 |
| **LS** | 2.8±0.758 | 1 – 5 | 00.65 | 00.06 | 28.68 | 08.38 | 08.53 | 00.14 | 05.04 |
| **PW** | 71.48±21.97 | 10−287.13 | 613.26 | 84.38 | 34.64 | 12.85 | 13.76 | 07.02 | 09.82 |
| **TSW** | 20.77±4.13 | 1.43−38.9 | 20.59 | 04.08 | 21.84 | 09.72 | 19.80 | 01.85 | 08.91 |
| **PHI** | 0.75±0.08 | 0.03−0.97 | 00.01 | 0.001 | 11.10 | 05.06 | 20.77 | 00.04 | 04.75 |
| **GYP** | 54.13±17.75 | 1.87−131.49 | 366.46 | 61.55 | 35.37 | 14.49 | 16.80 | 06.62 | 12.24 |

Notes: DF= Days to 50% flowering, NT=Number of tiller, NL=Number of leaf, PL=Panicle excertion, DM= Days to maturity, LS=Leaf senescence, PW=Panicle weight, TSW=Thousand seed weight, GYP=Grains yield per panicle PHI=Panicle harvest index SD=Standard deviation, $\sigma^2$p = Phenotypic variance, $\sigma^2$g = Genotypic variance, $Hb^2$ (%) = Broad sense heritability, PCV (%) = Phenotypic coefficient of variation, GCV (%) = Genotypic coefficient of variation, GA= Genetic advance, GAM (%) = Genetic advance as per cent of mean

The magnitude of differences was low for days to maturity, days to flowering, number of leaves and panicle harvest index, indicates minimum environmental influence and consequently greater role of genetic factors on the expression of traits. Thus, the higher chance of improvement of these traits through selection based on the phenotype performance. This result was in close agreement with the finding of Dhutmal *et al*. (2014) who studied on variability parameters in sorghum drought tolerant genotypes and reported less difference between GCV and PCV for days 50% flowering, days to physiological maturity, total number of leaves per plant.

The phenotypic coefficients of variation (PCV) ranged from 3.42 for days to maturity to 41.74 for panicle excertion, whereas GCV ranged from 1.24 for days to maturity to 25.15 for panicle excertion. A high PCV and GCV value was observed for panicle excertion in line with reports by Bello *et al*. (2007) who worked on genetic variability in cultivated sorghum. On the other hand, low GCV and PCV observed for days to flowering and days to maturity. Thus, it indicates limited improvement for the traits through selection. It is in agreement with the results of Sankar *et al*. (2013) and Khandelwal *et al*. (2015) for days to maturity and days to flowering.

The higher genotypic coefficient of variation (GCV) obtained for panicle excertion (25.15%), indicates the reliability of a trait to be selected for breeding program. Hence, GCV is the heritable portion. However, GCV was moderate for grain yield per panicle while low for the other traits like days to flowering, number of tillers, number of leaf, days to maturity, leaf senescence, panicle weight, thousand seed weigh and panicle harvest index

**4.3.2. Estimates of broad-sense heritability and genetic advance**

Estimates of broad sense heritability ranged from 8.39% for number of tillers to 36.32% for panicle excertion. In the present study, heritability was low to moderate for the traits (Table 3). Panicle excertion and number of leaf showed moderate heritability, indicates possibility of using these traits in improvement program. But, the expressions could be influenced by the environment. Number of leaf had medium heritability with low genetic advance suggesting that variations are attributed to high level of non additive gene effects and limited scope for selection. However, low heritability was observed for days to flowering, days to maturity, number of tiller, panicle weight, thousand seed weight, panicle harvest index and grain yield per panicle. Fentie *et al*. (2014) worked on genetic variability analysis for yield and yield component traits in upland rice and reported that the moderate heritability estimate for grain weight per panicle could be attributed to the fact that yield is a complex trait and is controlled by many genes. In harmony to this study Vinodhana *et al*. (2009) studied on genetic variability and drought tolerant studies in sorghum and reported that the character days to 50% flowering recorded the lowest heritability estimate indicating larger influence of environmental conditions on these characters. Wadikar *et al*. (2018) studied genetic variability in sweet sorghum and reported moderate heritability for number of leaves per plant (50.4). In contrast to my study, Ayele (2011) had worked on heritability and genetic advance in recombinant inbred lines for drought tolerance and other related traits in sorghum and reported that traits such as head length, panicle exertion, stay-green and green leaf area at flowering showed a relatively high heritability values. The parity of heritability values reported by different authors is due to heritability of a character was computed for different genotypes and refers to a particular population under particular environmental conditions (Dabholkar, 1992).

Genetic advance as a percent of mean (GAM) ranged from 0.92% for days to maturity to 31.23% for panicle excertion. GAM was high only for panicle excertion (31.23%), indicates the opportunity to improve these traits appear to be high, whereas it was moderate for grain weight per panicle per panicle and low for other traits. Moderate heritability coupled with high genetic advance as percent of mean observed for only panicle excertion while low for other traits. These traits are less amenable for selection. Thus, effective selection can be achieved only when additive gene effects are substantial and environmental effects are small.

### 4.4. Correlation coefficient analysis

#### 4.4.1. Correlation between yield and other traits

The phenotypic and genotypic correlations of the traits is presented in Table 4. Grain yield per panicle showed highly significant phenotypic correlation with number of leaf (r=0.32), panicle weight (r=0.96), 1000 seed weight (r=0.50), leaf senescence (r=-0.31) and panicle harvest index (r=0.48). Similarly, it showed highly significant and positive genotypic correlations with number of leaf (r=0.38), panicle weight (r=0.96), 1000 seed weight (r=0.36) and panicle harvest index (r=0.50).

Table 4. Estimates of correlation coefficients at phenotypic (above diagonal) and genotypic (below diagonal) levels for yield and yield related traits of BC1F4 sorghum evaluated at Meiso in 2017

| Traits | DF | NT | NL | PL | DM | LS | PW | TSW | PHI | GYP |
|---|---|---|---|---|---|---|---|---|---|---|
| **DF** | | 0.05 | 0.10 | -0.49** | 0.61** | -0.15* | -0.12 | -0.38** | -0.30** | -0.16* |
| **NT** | 0.20* | | 0.09 | -0.16* | 0.18* | -0.21** | 0.23** | 0.16* | -0.14* | 0.17* |
| **NL** | 0.23* | 0.08 | | -0.44** | 0.01 | 0.17* | 0.31** | -0.03 | 0.03 | 0.32** |
| **PL** | -0.58** | -0.21* | -0.57** | | -0.19** | -0.08 | -0.07 | 0.28** | 0.23** | -0.04 |
| **DM** | 0.60** | 0.31** | 0.15 | -0.21* | | -0.35** | 0.06 | 0.00 | -0.06 | 0.05 |
| **LS** | -0.12 | -0.30** | 0.17 | -0.03 | -0.29** | | -0.31** | -0.34** | -0.11 | -0.31** |
| **PW** | -0.03 | 0.24* | 0.36** | -0.21* | 0.09 | -0.26* | | 0.45** | 0.28** | 0.96** |
| **TSW** | -0.47** | 0.16 | -0.13 | 0.38** | -0.02 | -0.28** | 0.29** | | 0.49** | 0.50** |
| **PHI** | -0.43** | -0.24* | 0.05 | 0.24* | -0.14 | 0.03 | 0.25* | 0.50** | | 0.50** |
| **GYP** | -0.11 | 0.14 | 0.38** | -0.18 | 0.05 | -0.23* | 0.96** | 0.36** | 0.48** | |

Notes: * and ** indicate significance at 0.05 and 0.01 probability levels, respectively. DF= Days to 50% flowering, NL=Number of leaf, NT=Number of tiller, PL=Panicle excertion, LS=Leaf senescence, DM= Days to maturity, PW= Panicle weight, TSW=Thousand seed weight, GYP= Grains yield per panicle and PHI=Panicle harvest index

In general, number of leaf panicle weight, 1000 seed weight and panicle harvest index showed positive and significant phenotypic and genotypic correlation with grain yield per panicle; suggests that the possibility of simultaneous improvement of grain yield through indirect selection of these traits. Kassahun *et al*. (2015) found that grain yield per panicle showed high positive and significant correlation with panicle weight per plant, leaf area index and 1000-seed weight. Hamza *et al*. (2016) worked on drought tolerance assessment in grain sorghum genotypes using agro-morphological traits and reported that there was positive and significant correlation of grain yield with 1000 seed weight and significant negative association of grain yield with days to flowering.

#### 4.4.2. Correlation among yield related traits

Days to 50% flowering showed positive and highly significant genotypic and phenotypic correlation with days to maturity. Panicle excertion, 1000 seed weight and panicle harvest index had negative and highly significant genotypic and phenotypic association with days to flowering.

Days to 50% flowering also showed negative and non significant correlation with panicle weight and grain weight per panicle. This results agreed with findings by Abate (2017) who studied grain yield performance of sorghum genotypes in the dry low lands of Ethiopia and reported days to flowering shown to have a negative correlation with the major yield components including panicle yield and panicle weight even though the association with some of the traits was weaker and not significant.

Panicle weights showed strong positive association at both phenotypic and genotypic level with number of tiller, number of leaf, 1000 seed weight and number of grains per panicle and positive significant genotypic with panicle harvest index. Thousand seed weight (1000SW) showed positive and highly significant genotypic and phenotypic association to grain yield per panicle and with traits likepanicle excertion and panicle weight. Panicle harvest index had positive and highly significant genotypic and phenotypic correlation with 1000 seed weight and grain yield per panicle. Panicle excertion and panicle weight had a positive and significant genotypic correlation with panicle harvest index.

From these results it is evident that panicle weight, 1000 seed weight and panicle harvest index associated with grain weight per panicle and are posotively inter-correlated among them. Thus, the selection in any one of these traits will lead to increase in the other traits, thereby finally enhancing the grain weight per panicle. In line with the report by Sinh and Kumaradivel (2016) who worked on genetic diversity of sorghum using quantitative traits and reported correlation with grain yield and inter-correlation for panicle weight and seed weight. And also, they suggested selection of these traits for grain yield.

### 4.5. Path Coefficient Analysis

Correlation coefficient of each independent character was partitioned into direct and indirect effects towards grain yield per panicle. Accordingly, phenotypic path analysis revealed that panicle weight (0.8847) had maximum positive direct effect on yield per planicle followed by panicle harvest index (0.2663), number of leaf (0.0335), number of tillers (0.0094) and days to flowering (0.0108). Panicle weight also showed considerable amount of positive indirect effect via panicle harvest index (0.0755), number of leaf (0.0104), leaf senescence (0.0047) and number of tiller (0.0021).

Genotypic path analysis revealed that panicle weight (0.8739) had maximum positive direct effect on yield per panicle followed by panicle harvest index (0.2749) and number of leaf (0.0537) and also had positive correlation with grain yield. These traits could be used as a reliable indicator in indirect selection for higher grain weight per panicle since their direct effect and association with grain weight per panicle were positive. Number of leaf and 1000 seed weight showed high positive indirect effect on grain yield per panicle through panicle weight. Therefore, panicle weight may be considered as prime yield components in sorghum. Ezeaku and Mohammed (2006) and Sayed (2016) reported that among yield components, panicle weight was critical for maintaining yields under drought conditions. In the phenotypic path coefficients the residual effect (R=0.13) indicated the traits (days to flowering, number of tiller, number of leaf, leaf senescence, panicle weight, 1000 seed weight and panicle harvest index) explained about 87% of total variability in grain yield per panicle. In genotypic path coefficients, the residual effect (R= 0.13) indicated the traits (number of leaf, leaf senescence, panicle weight, 1000 seed weight and panicle harvest index) explained about 87% of the total variability in grain yield per panicle.

Table 5. Estimates of phenotypic path analysis of the direct (bolded diagonal) and indirect (off-diagonal) effects of yield related traits on grain yield of BC1F4 sorghum evaluated at Meiso in 2017

| Traits | DF | NT | NL | LS | PW | TSW | PHI | rp |
|---|---|---|---|---|---|---|---|---|
| **DF** | **0.0108** | 0.0005 | 0.0035 | 0.0022 | -0.1055 | 0.0125 | -0.0801 | -0.1561 |
| **NT** | 0.0006 | **0.0094** | 0.0033 | 0.0031 | 0.2021 | -0.0054 | -0.0382 | 0.1748 |
| **NL** | 0.0011 | 0.0009 | **0.0335** | -0.0025 | 0.2755 | 0.0011 | 0.0074 | 0.3171 |
| **LS** | -0.0016 | -0.0020 | 0.0056 | **-0.0149** | -0.2780 | 0.0111 | -0.0283 | -0.3080 |
| **PW** | -0.0013 | 0.0021 | 0.0104 | 0.0047 | **0.8847** | -0.0148 | 0.0755 | 0.9614 |
| **TSW** | -0.0041 | 0.0015 | -0.0011 | 0.0051 | 0.4001 | **-0.0327** | 0.1292 | 0.4980 |
| **PHI** | -0.0032 | -0.0013 | 0.0009 | 0.0016 | 0.2510 | -0.0159 | **0.2663** | 0.4993 |

Residual effect= 0.13

Notes: DF= Days to 50% flowering, NT=Number of tiller, NL=Number of leaf, LS=Leaf senescence, PW= Panicle weight, TSW=Thousand seed weight, PHI=Panicle harvest index and rp=Phenotypic correlation with grain yield per panicle

Table 6. Estimates of genotypic path analysis of the direct (bolded diagonal) and indirect (off-diagonal) effects of yield related traits on grain yield of BC1F4 sorghum evaluated at Meiso in 2017

| Traits | NL | LS | PW | TSW | PHI | rg |
|---|---|---|---|---|---|---|
| **NL** | **0.0537** | -0.0047 | 0.3164 | 0.0043 | 0.0148 | 0.3845 |
| **LS** | 0.0091 | **-0.0275** | -0.2242 | 0.0097 | 0.0074 | -0.2255 |
| **PW** | 0.0194 | 0.0071 | **0.8739** | -0.0100 | 0.0679 | 0.9583 |
| **TSW** | -0.0067 | 0.0078 | 0.2573 | **-0.0341** | 0.1387 | 0.3630 |
| **PHI** | 0.0029 | -0.0007 | 0.2159 | -0.0172 | **0.2749** | 0.4757 |

Residual effect= 0.13

Notes: NL= number of leaf, LS=Leaf senescence, PW= Panicle weight, TSW=Thousand seed weight, PHI=Panicle harvest index and rg= Genotypic correlation with grain yield per panicle

### 4.6. Principal component analysis (PCA)

The principal component analysis (Table 7) revealed that the first three principal components (PCs), with eigenvalues greater than 1, explained about 64.85% of the total variation among genotypes for all traits.

Table 7. Eigenvectors, and eigenvalues of the first three principal components (PCs) for quantitative traits of BC1F4 sorghum genotypes evaluated at Meiso in 2017

| Traits | PC-I | PC-II | PC-III |
|---|---|---|---|
| **DF** | -0.36 | 0.41 | -0.16 |
| **NT** | 0.16 | 0.12 | -0.16 |
| **NL** | -0.03 | 0.43 | 0.37 |
| **PL** | 0.28 | -0.37 | -0.30 |
| **DM** | -0.20 | 0.41 | -0.45 |
| **LS** | -0.13 | -0.29 | 0.57 |
| **PW** | 0.38 | 0.37 | 0.26 |
| **TSW** | 0.44 | 0.03 | -0.26 |
| **PHI** | 0.40 | -0.03 | -0.08 |
| **GYP** | 0.46 | 0.33 | 0.21 |
| **Eigenvalue** | 2.90 | 2.15 | 1.44 |
| **Proportion (%)** | 28.98 | 21.49 | 14.38 |
| **Cumulative** | 28.98 | 50.47 | 64.85 |

DF= Days to 50% flowering, NL=Number of leaf, NT=Number of tillers, PL=Panicle excertion, LS=Leaf senescence, DM= Days to maturity, PW= Panicle weight, TSW=Thousa nd seed weight,GYP= grains yield per panicle and PHI=Panicle harvest index

Eigenvalues of these principal component analyses (PC-I, PC-II and PC-III) were 2.90, 2.15 and 1.44, respectively. The first principal component (PC-I) obtained was 28.98% of total variance and had high contributing factor loading from panicle weight, thousand seed weight, panicle harvest index and grain yield per panicle, which were the most important contributing traits for the relative magnitudes of eigenvectors for the first principal component, while days to flowering had negatively high contributing factor. The second principal component (PC-II) had high contributing factor loading from days to flowering, days to maturity, number of leaf, panicle weight and grain yield per panicle while panicle excertion had negatively high contributing factor, which was 21.49%, and, finally, it had a high contributing factor loading from number of leaf and leaf senescence while days to maturity had negatively high contributing factor for the third principal component (14.38%). Considering a minimum threshold Eigen value of one, the three principal components (PCs) accounted for a cumulative of about 64.85.3% of the whole phenotypic diversity observed among the BCNAM lines. Moreover, the principal components analysis also showed that the variation in the genotypes cannot be explained on the basis of few characters.

# 5. SUMMARY AND CONCLUSION

Drought becomes the major threat for sorghum production in Ethiopia, especially in drought prone areas of the country. The existing variation in sorghum may not be sufficient. Hence, there is a need to create new variability by crossing genotypes from different sources. In the present study, we used BCNAM population developed by crossing parental lines from caudatum and dura races of sorghum. An experiment was conducted to evaluate the BCNAM population for drought tolerance related and other agronomic traits and also to estimate components of variance, heritability and genetic advance among traits. To address these objectives, one field experiment was conducted at meiso. In these, 1464 BCNAM progenies including 14 parents and two checks were evaluated using an alpha lattice design with two replications. The results obtained in the present investigation are briefly summarized as follows:

The superior genotypes in grain weight per panicle were: 660, 10, 141, 494 and 970 with respective mean grain yield of 131.5g, 128.51g, 127.41g, 122.3g and 121.4g, respectively while the lowest yield obtained from genotypes: 552, 1358, 1464, 636 and 1308 with mean grain yield of 1.87g, 6.57g, 7.12g, 8.14g and 8.90g, respectively. The two early flowering line 253 and 763 showed better performance than recurrent parent (Teshale) and Dakaba while four (4) genotypes: 413, 508, 510, 50 showed better performance than Dakaba. The top early maturing genotypes were statistically similar with recurrent parent in yield performance while genotypes: 413, 510, 444, 1245 showed significant difference compared to Dakaba. The genotypes those had higher panicle harvest index and perform better than Dakaba and Teshale were: 232, 475, 208, 24 and 1354. Parents also showed significantdifference among each other. Accordingly, IS16044(76.98g), IS16173 (71.139), IS23988 (65.83g), IS14298 (63.53g) and IS15428 (63.49g) were better performed than the other parents.

The phenotypic coefficients of variation (PCV) ranged from 3.42 for days to maturity to 41.74 for panicle excertion while GCV ranged from 1.24 for days to maturity to 25.15 for panicle excertion. The magnitude of differences between GCV and PCV was large for number of tiller, panicle excertion, leaf senescence, panicle weight and grain yield per panicle. The higher genotypic coefficient of variation (GCV) obtained for panicle excertion (25.15%). Broad sense heritability ranged from 8.39% for number of tillers to 36.32% for panicle excertion. Panicle excertion, number of leaf showed moderate heritability while other traits were showed lower heritability. Genetic advance as a percent of mean (GAM) ranged from 0.92% for days to maturity to 31.23% for panicle excertion while only panicle excertion had high GAM. Moderate heritability coupled with high genetic advance as percent of mean observed for panicle excertion while low for all the other traits.

Positive and significant phenotypic and genotypic correlation with grain yield per panicle observed in number of leaf, panicle weight, 1000 seed weight and panicle harvest index. Panicle weights, panicle harvest index and number of leaf showed positive direct contribution to grain yield per panicle in genotypic and phenotypic path analysis. In addition, panicle weight had highest direct effect on grain yield followed by panicle harvest index. In both the phenotypic and genotypic path coefficient analysis the traits explain 87% of the total variability in grain yield per panicle. The principal component analysis(PCAs) revealed that the first three PCs,with eigenvalues greater than 1, explained about 64.85% of the total variation among genotypes.

The mean sum of squares due to genotypes was highly significant at $p<0.01$ level of significant for all the traits studied in the present investigation. This indicates the existence of considerable variability for all characters studied among the genotypes. Hence, it offers a better scope for further improvement of breeding material by the selection of promising genotypes in sorghum breeding program.

The genotypic variance took relatively greater proportion of the total variances for panicle excertion. Hence, a genetic component of this trait is important and selection based on this trait is effective. Path coefficient analysis revealed that the panicle weights, panicle harvest index and number of leaf had high positive direct effect on grain yield per panicle at the same time these traits also had significant and positive correlation with grain yield per panicle. Hence, due emphasis should be given to these characters during selection for sorghum improvement. The top five genotypes that performed better than all the other BC1F4 progenies were 660, 10, 14, 494 and 970. Also, the top two genotypes that performed better than Dakaba and Teshale for grain yield per panicle and early flowering were the genotypes: 253, 763. Early maturing genotypes 413, 510, 444, 1245 statistically similar with recurrent parent in terms of earliness and grain yield per panicle which can be a promising genotypes under target areas. Besides, they performed better than Dakaba.

**Future line of work:**

- There is a need to repeat the experiment so as to get reliable phenotypic data for QTL mapping.
- Further evaluation of these genotypes at more locations and over years is advisable.

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# 7. APPENDICES

**Appendix Table 2. Weather conditions during the cropping season of sorghum BCNAM populations at Meiso in 2017**

| Month | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|
| Maximum T° (°C) | 35.1 | 32.9 | 30.9 | 29.9 | 31.4 | 30.2 | 27.8 |
| Minimum T° (°C) | 19.1 | 19 | 18.1 | 17.4 | 15.1 | 14.0 | 8.0 |
| RF (mm) | 8.7 | 75.3 | 99.7 | 281.2 | 8.8 | 0.0 | 0.0 |

**Appendix Table 3. Analysis of variance for BC1F4 sorghum evaluated at Meiso in 2017**

| Source of variance | Degrees of freedom | Mean Squares | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DF | NT | NL | PL | DM | LS | PW | TSW | PHI | |
| Replication | 1 | 1846.25** | 0.60** | 48.97** | 16.98** | 259.65** | 0.76 ns | 295.30ns | 597.66** | 0.04** | 11.56 ns |
| Block (Replication) | 146 | 64.93** | 0.11** | 1.66** | 1.47** | 50.24** | 2.33** | 1312.1** | 51.14** | 0.01** | 945.65** |
| Genotypes | 1413 | 34.05** | 0.08** | 1.48** | 1.52** | 19.85** | 0.70** | 697.63** | 24.66** | 0.008** | 428.01** |
| Error | 987 | 24.94 | 0.07 | 0.72 | 0.71 | 15.26 | 0.59 | 528.88 | 16.51 | 0.005 | 304.91 |
| R2 | | 0.74 | 0.68 | 0.79 | 0.78 | 0.74 | 0.74 | 0.72 | 0.75 | 0.74 | 0.74 |
| CV (%) | | 5.87 | 26.78 | 8.56 | 33.37 | 3.19 | 27.52 | 32.17 | 19.55 | 9.92 | 32.26 |

* and **, indicating significant at 5% and 1% respectively. DF= Days to 50% flowering, NL=number of leaf, NT=number of tiller, PL=Panicle excertion, LS=leaf senescence, DM= Days to maturity, PW= Panicle weights, TSW=Thousand seed weights, GYP = grains yield per panicle PHI=Panicle harvest index

**Appendix Table 4. Mean value of BC1F4 sorghum genotypes evaluated at Meiso during 2017**

| Entry | Genotypes | DTF | NT | NL | PL | DTM | LS | PW | TSW | PHI | GYP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Teshale×14446 | 83.00 | 0.20 | 10.20 | 9.10 | 124.00 | 3.00 | 73.30 | 21.41 | 0.72 | 52.84 |
| 2 | Teshale×14446 | 82.00 | 0.38 | 9.90 | 6.47 | 118.00 | 3.00 | 75.15 | 24.77 | 0.78 | 58.99 |
| 3 | Teshale×14446 | 83.50 | 0.00 | 10.20 | 6.90 | 119.50 | 3.00 | 88.00 | 26.23 | 0.78 | 69.18 |
| 4 | Teshale×14446 | 86.50 | 0.00 | 8.50 | 4.00 | 118.50 | 2.50 | 75.25 | 19.82 | 0.69 | 52.66 |
| 5 | Teshale×14446 | 88.00 | 0.70 | 11.90 | 2.70 | 122.50 | 2.50 | 91.10 | 20.32 | 0.77 | 69.84 |
| 6 | Teshale×14446 | 91.00 | 0.00 | 10.00 | 0.80 | 127.00 | 3.00 | 57.10 | 18.27 | 0.71 | 41.67 |
| 7 | Teshale×14446 | 73.50 | 0.50 | 9.80 | 7.90 | 118.00 | 1.50 | 56.05 | 37.90 | 0.77 | 43.81 |
| 8 | Teshale×14446 | 84.50 | 0.20 | 9.30 | 10.35 | 118.50 | 3.50 | 40.48 | 11.35 | 0.72 | 29.87 |
| 9 | Teshale×14446 | 85.00 | 0.00 | 8.63 | 10.00 | 122.00 | 2.50 | 51.88 | 18.80 | 0.86 | 43.40 |
| 10 | Teshale×14446 | 81.00 | 2.00 | 10.67 | 6.33 | 125.00 | 2.00 | 157.88 | 33.21 | 0.82 | 128.51 |
| 11 | Teshale×14446 | 79.50 | 0.00 | 8.70 | 10.10 | 116.00 | 3.00 | 52.30 | 21.37 | 0.77 | 41.12 |
| 12 | Teshale×14446 | 83.00 | 0.00 | 9.20 | 5.80 | 121.00 | 3.50 | 76.07 | 19.54 | 0.75 | 58.16 |
| 13 | Teshale×14446 | 80.00 | 0.20 | 10.60 | 8.10 | 117.50 | 3.50 | 100.15 | 24.48 | 0.79 | 80.23 |
| 14 | Teshale×14446 | 77.50 | 0.40 | 10.00 | 8.70 | 117.50 | 2.00 | 84.60 | 29.90 | 0.82 | 70.10 |
| 15 | Teshale×14446 | 86.00 | 0.00 | 9.95 | 7.10 | 123.00 | 2.00 | 65.15 | 19.29 | 0.76 | 49.80 |
| 16 | Teshale×14446 | 80.00 | 0.30 | 9.90 | 3.00 | 120.00 | 2.00 | 76.34 | 22.58 | 0.82 | 62.68 |
| 17 | Teshale×14446 | 89.50 | 0.40 | 11.00 | 2.60 | 128.00 | 3.00 | 102.15 | 21.60 | 0.77 | 79.05 |
| 18 | Teshale×14446 | 82.50 | 0.50 | 9.90 | 6.80 | 118.00 | 4.00 | 69.55 | 22.30 | 0.80 | 55.52 |
| 19 | Teshale×14446 | 79.50 | 0.00 | 10.43 | 11.05 | 118.50 | 3.50 | 67.07 | 24.16 | 0.74 | 51.96 |
| 21 | Teshale×14446 | 90.00 | 0.10 | 9.80 | 1.35 | 128.00 | 3.00 | 67.65 | 18.84 | 0.78 | 52.19 |
| 23 | Teshale×14446 | 87.00 | 0.50 | 10.63 | 1.50 | 128.50 | 3.00 | 82.38 | 21.66 | 0.77 | 64.02 |
| 24 | Teshale×14446 | 85.00 | 0.00 | 11.90 | 3.30 | 124.00 | 2.00 | 96.00 | 23.89 | 0.89 | 86.87 |
| 25 | Teshale×14446 | 77.00 | 0.20 | 9.40 | 9.10 | 117.00 | 4.00 | 67.05 | 26.70 | 0.77 | 51.47 |
| 26 | Teshale×14446 | 86.00 | 0.00 | 10.10 | 2.20 | 123.00 | 3.50 | 66.90 | 25.86 | 0.79 | 53.32 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | Teshale×14446 | 80.00 | 0.25 | 8.75 | 5.25 | 127.50 | 1.00 | 87.25 | 19.46 | 0.73 | 63.23 |
| 28 | Teshale×14446 | 85.00 | 0.50 | 11.00 | 7.00 | 134.00 | 2.50 | 80.75 | 24.79 | 0.81 | 65.41 |
| 29 | Teshale×14446 | 82.50 | 1.20 | 9.80 | 3.90 | 122.50 | 3.50 | 61.89 | 28.02 | 0.82 | 49.76 |
| 30 | Teshale×14446 | 81.50 | 0.25 | 10.88 | 10.00 | 130.50 | 3.50 | 80.13 | 24.13 | 0.78 | 62.46 |
| 31 | Teshale×14446 | 87.00 | 0.75 | 9.00 | 4.35 | 122.50 | 3.50 | 52.77 | 17.26 | 0.75 | 40.36 |
| 32 | Teshale×14446 | 81.00 | 0.20 | 9.00 | 11.10 | 122.00 | 2.50 | 59.30 | 26.31 | 0.76 | 45.52 |
| 33 | Teshale×14446 | 84.00 | 0.25 | 9.75 | 3.75 | 119.00 | 3.00 | 54.00 | 16.98 | 0.78 | 41.72 |
| 34 | Teshale×14446 | 86.00 | 0.00 | 11.50 | 7.50 | 129.00 | 1.00 | 93.50 | 23.35 | 0.75 | 71.68 |
| 35 | Teshale×14446 | 78.00 | 0.70 | 9.20 | 10.60 | 117.50 | 3.00 | 82.60 | 26.52 | 0.74 | 59.78 |
| 36 | Teshale×14446 | 92.00 | 2.00 | 12.00 | 0.00 | 125.00 | 2.00 | 98.00 | 24.55 | 0.81 | 81.32 |
| 38 | Teshale×14446 | 85.00 | 0.30 | 8.90 | 6.50 | 122.50 | 2.00 | 61.80 | 22.60 | 0.78 | 49.07 |
| 39 | Teshale×14446 | 85.00 | 0.20 | 10.44 | 4.50 | 122.00 | 3.00 | 72.15 | 23.47 | 0.81 | 58.14 |
| 40 | Teshale×14446 | 75.00 | 2.00 | 9.25 | 9.00 | 118.00 | 3.00 | 65.10 | 32.63 | 0.84 | 53.66 |
| 41 | Teshale×14446 | 82.50 | 0.70 | 9.60 | 4.90 | 122.00 | 2.00 | 65.10 | 22.35 | 0.73 | 49.78 |
| 42 | Teshale×14446 | 84.50 | 0.13 | 8.50 | 11.50 | 123.00 | 3.50 | 56.68 | 27.68 | 0.79 | 43.75 |
| 43 | Teshale×14446 | 90.00 | 0.33 | 11.00 | 0.67 | 130.00 | 1.00 | 102.00 | 26.58 | 0.78 | 80.95 |
| 44 | Teshale×14446 | 84.50 | 1.60 | 11.00 | 3.80 | 121.00 | 2.50 | 97.85 | 22.52 | 0.76 | 73.72 |
| 45 | Teshale×14446 | 85.00 | 0.00 | 10.10 | 9.50 | 122.50 | 3.50 | 52.80 | 15.66 | 0.78 | 40.98 |
| 46 | Teshale×14446 | 84.50 | 1.10 | 11.47 | 4.44 | 122.00 | 3.50 | 81.70 | 28.37 | 0.79 | 65.10 |
| 47 | Teshale×14446 | 83.00 | 0.20 | 8.70 | 4.50 | 121.00 | 3.00 | 78.99 | 21.90 | 0.78 | 60.98 |
| 48 | Teshale×14446 | 88.50 | 0.50 | 10.30 | 1.30 | 119.50 | 3.00 | 54.55 | 15.05 | 0.68 | 37.69 |
| 49 | Teshale×14446 | 86.50 | 0.75 | 10.42 | 0.00 | 124.00 | 2.50 | 83.19 | 17.61 | 0.69 | 60.59 |
| 50 | Teshale×14446 | 73.00 | 0.30 | 10.20 | 9.50 | 116.00 | 2.50 | 83.05 | 25.51 | 0.83 | 68.06 |
| 51 | Teshale×14446 | 81.00 | 0.20 | 10.28 | 12.37 | 121.00 | 3.00 | 58.92 | 25.31 | 0.79 | 45.69 |
| 52 | Teshale×14446 | 83.50 | 0.10 | 9.60 | 1.70 | 118.50 | 3.50 | 57.20 | 19.79 | 0.78 | 44.37 |
| 53 | Teshale×14446 | 91.50 | 0.50 | 11.50 | 0.20 | 124.00 | 3.00 | 49.55 | 16.20 | 0.73 | 37.49 |
| 54 | Teshale×14446 | 99.50 | 3.00 | 10.17 | 0.00 | 129.00 | 3.00 | 54.38 | 13.05 | 0.54 | 29.20 |
| 55 | Teshale×14446 | 91.00 | 2.50 | 9.70 | 3.50 | 133.50 | 1.50 | 87.50 | 31.39 | 0.81 | 69.63 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 56 | Teshale×14446 | 89.00 | 0.00 | 8.60 | 2.80 | 118.00 | 3.00 | 31.83 | 10.02 | 0.46 | 14.55 |
| 57 | Teshale×14446 | 85.00 | 0.45 | 11.15 | 0.00 | 117.50 | 3.50 | 79.18 | 18.75 | 0.75 | 58.36 |
| 58 | Teshale×14446 | 85.00 | 0.67 | 9.33 | 3.00 | 118.00 | 3.00 | 81.13 | 15.56 | 0.73 | 59.86 |
| 59 | Teshale×14446 | 85.00 | 0.40 | 10.30 | 3.50 | 119.50 | 3.50 | 61.75 | 17.99 | 0.72 | 45.21 |
| 60 | Teshale×14446 | 83.00 | 0.60 | 7.80 | 14.30 | 124.00 | 1.50 | 66.55 | 31.26 | 0.82 | 54.89 |
| 61 | Teshale×14446 | 73.00 | 0.00 | 9.90 | 18.60 | 119.50 | 3.50 | 68.10 | 27.73 | 0.83 | 55.56 |
| 62 | Teshale×14446 | 82.50 | 0.75 | 8.25 | 22.50 | 123.00 | 2.00 | 82.50 | 25.98 | 0.62 | 52.46 |
| 63 | Teshale×14446 | 83.50 | 0.90 | 10.54 | 5.47 | 122.50 | 3.00 | 72.57 | 24.22 | 0.80 | 58.35 |
| 64 | Teshale×14446 | 82.00 | 1.00 | 8.63 | 13.00 | 123.50 | 2.00 | 72.13 | 23.64 | 0.80 | 58.56 |
| 65 | Teshale×14446 | 84.50 | 0.30 | 9.60 | 5.90 | 121.50 | 3.50 | 61.90 | 17.26 | 0.69 | 42.48 |
| 66 | Teshale×14446 | 82.00 | 0.00 | 8.40 | 21.20 | 123.00 | 4.00 | 34.90 | 22.15 | 0.74 | 26.53 |
| 67 | Teshale×14446 | 83.50 | 0.90 | 10.30 | 6.50 | 121.00 | 3.00 | 85.30 | 19.37 | 0.74 | 64.82 |
| 68 | Teshale×14446 | 88.00 | 0.00 | 10.90 | 3.50 | 122.50 | 4.00 | 104.80 | 25.22 | 0.82 | 84.88 |
| 69 | Teshale×14446 | 80.00 | 0.10 | 9.70 | 9.80 | 118.50 | 2.50 | 75.00 | 20.20 | 0.81 | 59.99 |
| 70 | Teshale×14446 | 76.50 | 0.40 | 11.20 | 2.50 | 119.50 | 2.50 | 82.90 | 30.90 | 0.80 | 66.72 |
| 71 | Teshale×14446 | 81.50 | 0.00 | 9.05 | 11.40 | 122.00 | 3.00 | 64.25 | 27.77 | 0.84 | 53.78 |
| 72 | Teshale×14446 | 87.50 | 0.00 | 9.20 | 4.60 | 122.00 | 3.00 | 66.45 | 20.10 | 0.76 | 50.21 |
| 73 | Teshale×14446 | 77.50 | 0.50 | 10.30 | 9.30 | 126.00 | 2.00 | 87.35 | 37.83 | 0.85 | 74.45 |
| 74 | Teshale×14446 | 84.00 | 0.25 | 10.25 | 3.03 | 119.50 | 1.50 | 109.50 | 22.43 | 0.79 | 86.34 |
| 75 | Teshale×14446 | 81.50 | 1.00 | 11.00 | 5.70 | 122.00 | 2.50 | 99.20 | 23.90 | 0.79 | 78.21 |
| 76 | Teshale×14446 | 82.50 | 0.20 | 9.50 | 17.10 | 122.50 | 3.50 | 45.89 | 25.09 | 0.83 | 39.20 |
| 77 | Teshale×14446 | 83.00 | 0.00 | 9.30 | 9.20 | 118.50 | 3.00 | 87.69 | 20.80 | 0.72 | 63.62 |
| 78 | Teshale×14446 | 79.00 | 0.43 | 9.88 | 7.58 | 122.00 | 3.50 | 67.47 | 23.95 | 0.77 | 52.11 |
| 79 | Teshale×14446 | 88.00 | 0.20 | 8.20 | 19.70 | 129.00 | 2.50 | 42.90 | 23.08 | 0.79 | 34.67 |
| 80 | Teshale×14446 | 90.00 | 0.00 | 10.57 | 1.97 | 128.50 | 3.50 | 72.68 | 19.19 | 0.72 | 51.70 |
| 81 | Teshale×14446 | 86.00 | 1.00 | 10.67 | 4.00 | 119.00 | 3.00 | 118.00 | 23.24 | 0.79 | 92.03 |
| 82 | Teshale×14446 | 79.50 | 0.50 | 9.00 | 11.00 | 118.50 | 4.00 | 52.85 | 24.11 | 0.79 | 41.18 |
| 83 | Teshale×14446 | 88.00 | 0.44 | 11.17 | 3.87 | 127.00 | 2.00 | 74.40 | 20.55 | 0.73 | 54.58 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 84 | Teshale×14446 | 82.50 | 0.20 | 9.90 | 10.90 | 124.00 | 3.50 | 37.75 | 20.34 | 0.72 | 27.11 |
| 85 | Teshale×14446 | 86.00 | 0.55 | 9.65 | 11.88 | 123.50 | 2.00 | 56.15 | 26.82 | 0.82 | 45.57 |
| 87 | Teshale×14446 | 79.50 | 0.70 | 8.90 | 9.70 | 118.50 | 1.50 | 69.85 | 33.76 | 0.74 | 51.10 |
| 88 | Teshale×14446 | 83.00 | 0.40 | 8.90 | 13.00 | 125.00 | 3.00 | 62.25 | 20.69 | 0.73 | 46.55 |
| 89 | Teshale×14446 | 81.50 | 0.74 | 10.60 | 4.64 | 127.00 | 2.50 | 94.03 | 24.05 | 0.80 | 73.16 |
| 90 | Teshale×14446 | 81.00 | 0.70 | 10.40 | 8.20 | 119.50 | 2.00 | 88.00 | 25.13 | 0.77 | 67.77 |
| 91 | Teshale×14446 | 84.00 | 0.25 | 9.75 | 6.00 | 129.00 | 3.00 | 93.00 | 38.95 | 0.87 | 78.20 |
| 92 | Teshale×14446 | 81.00 | 0.60 | 10.00 | 1.40 | 119.00 | 3.00 | 69.60 | 22.53 | 0.78 | 55.71 |
| 93 | Teshale×14446 | 85.00 | 0.60 | 11.60 | 1.20 | 119.00 | 3.00 | 114.70 | 21.70 | 0.78 | 90.01 |
| 94 | Teshale×14446 | 82.50 | 0.13 | 10.50 | 4.88 | 123.00 | 2.00 | 126.25 | 26.53 | 0.83 | 101.78 |
| 95 | Teshale×14446 | 93.50 | 1.50 | 9.50 | 1.25 | 129.50 | 1.50 | 57.63 | 24.14 | 0.72 | 42.75 |
| 96 | Teshale×14446 | 95.00 | 0.00 | 10.00 | 7.50 | 129.00 | 2.00 | 73.50 | 20.61 | 0.76 | 56.90 |
| 97 | Teshale×14446 | 86.00 | 1.75 | 9.17 | 10.50 | 127.00 | 1.50 | 119.25 | 32.63 | 0.64 | 66.25 |
| 98 | Teshale×14446 | 85.00 | 0.40 | 9.15 | 9.23 | 121.00 | 2.00 | 77.75 | 29.70 | 0.81 | 62.15 |
| 99 | Teshale×14446 | 86.00 | 0.65 | 10.50 | 0.60 | 122.00 | 4.00 | 71.22 | 18.60 | 0.73 | 52.76 |
| 100 | Teshale×14446 | 81.00 | 0.20 | 10.80 | 7.80 | 118.00 | 3.00 | 73.43 | 24.28 | 0.64 | 46.57 |
| 101 | Teshale×14446 | 95.00 | 0.00 | 10.00 | 0.00 | 127.00 | 1.00 | 83.00 | 24.26 | 0.80 | 65.09 |
| 102 | Teshale×14446 | 87.50 | 0.73 | 9.98 | 6.88 | 126.00 | 2.00 | 78.20 | 22.05 | 0.67 | 56.15 |
| 103 | Teshale×14446 | 76.50 | 0.87 | 9.07 | 13.20 | 124.50 | 2.00 | 63.75 | 22.51 | 0.75 | 47.83 |
| 104 | Teshale×14446 | 81.00 | 0.30 | 9.30 | 4.30 | 119.00 | 3.00 | 90.50 | 21.40 | 0.76 | 68.05 |
| 105 | Teshale×14446 | 84.00 | 0.00 | 9.65 | 7.60 | 124.00 | 3.00 | 77.75 | 21.98 | 0.79 | 61.12 |
| 106 | Teshale×14446 | 87.00 | 0.33 | 8.43 | 8.15 | 122.00 | 1.00 | 70.13 | 25.74 | 0.72 | 51.57 |
| 107 | Teshale×14446 | 96.00 | 1.00 | 9.84 | 1.00 | 129.50 | 1.50 | 55.75 | 16.91 | 0.54 | 36.01 |
| 108 | Teshale×14446 | 87.50 | 1.30 | 10.35 | 2.60 | 125.50 | 2.00 | 103.55 | 22.93 | 0.77 | 78.21 |
| 109 | Teshale×14446 | 82.50 | 1.75 | 9.17 | 8.42 | 122.00 | 2.00 | 102.42 | 25.89 | 0.83 | 85.04 |
| 110 | Teshale×14446 | 83.50 | 0.10 | 9.80 | 8.50 | 119.00 | 2.00 | 55.45 | 29.38 | 0.81 | 44.96 |
| 112 | Teshale×14446 | 96.00 | 0.00 | 12.40 | 0.00 | 128.00 | 2.50 | 47.40 | 16.46 | 0.64 | 31.18 |
| 113 | Teshale×14446 | 99.00 | 0.00 | 13.00 | 0.00 | 130.00 | 2.00 | 53.00 | 13.85 | 0.69 | 37.17 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 114 | Teshale×14446 | 87.00 | 0.00 | 10.60 | 8.50 | 121.50 | 3.50 | 80.82 | 16.52 | 0.66 | 55.92 |
| 115 | Teshale×14446 | 96.00 | 0.50 | 9.80 | 6.30 | 130.50 | 1.50 | 87.80 | 22.49 | 0.80 | 69.28 |
| 116 | Teshale×14446 | 87.00 | 0.60 | 10.30 | 6.20 | 123.00 | 3.00 | 87.40 | 24.41 | 0.75 | 63.92 |
| 117 | Teshale×14446 | 86.00 | 0.50 | 9.60 | 8.90 | 124.00 | 1.50 | 93.20 | 24.30 | 0.79 | 73.68 |
| 118 | Teshale×14446 | 88.00 | 0.84 | 11.84 | 0.50 | 122.50 | 2.50 | 142.55 | 28.35 | 0.85 | 120.62 |
| 119 | Teshale×14446 | 85.50 | 0.10 | 9.64 | 8.50 | 121.00 | 3.00 | 60.84 | 18.18 | 0.73 | 45.66 |
| 120 | Teshale×14446 | 86.50 | 1.27 | 11.10 | 7.10 | 127.50 | 2.50 | 104.45 | 25.07 | 0.81 | 84.30 |
| 121 | Teshale×14446 | 91.00 | 0.00 | 12.00 | 7.00 | 127.00 | 1.00 | 65.50 | 38.01 | 0.67 | 43.55 |
| 122 | Teshale×14446 | 76.00 | 0.60 | 9.20 | 15.50 | 123.00 | 3.00 | 60.85 | 34.66 | 0.80 | 48.57 |
| 123 | Teshale×14446 | 78.00 | 0.40 | 11.00 | 6.90 | 117.00 | 3.50 | 64.92 | 21.12 | 0.76 | 48.64 |
| 124 | Teshale×14446 | 79.00 | 1.60 | 9.60 | 8.20 | 120.00 | 2.00 | 107.00 | 25.38 | 0.80 | 85.61 |
| 126 | Teshale×14446 | 82.00 | 0.00 | 9.80 | 6.20 | 118.00 | 4.00 | 68.30 | 20.93 | 0.81 | 53.55 |
| 127 | Teshale×14446 | 91.50 | 1.50 | 10.50 | 8.00 | 124.00 | 1.50 | 61.07 | 22.01 | 0.79 | 49.66 |
| 128 | Teshale×14446 | 83.50 | 0.40 | 9.25 | 9.50 | 117.00 | 3.00 | 56.70 | 17.66 | 0.79 | 44.88 |
| 129 | Teshale×14446 | 86.00 | 0.50 | 10.94 | 2.70 | 123.50 | 2.50 | 87.00 | 28.17 | 0.73 | 64.87 |
| 130 | Teshale×14446 | 79.50 | 1.20 | 9.70 | 13.30 | 117.50 | 2.50 | 99.80 | 33.41 | 0.83 | 81.75 |
| 131 | Teshale×14446 | 88.50 | 0.75 | 10.13 | 5.88 | 126.00 | 2.00 | 53.42 | 22.72 | 0.68 | 37.35 |
| 132 | Teshale×14446 | 86.50 | 1.50 | 10.00 | 3.00 | 123.00 | 2.50 | 83.13 | 21.11 | 0.83 | 70.09 |
| 133 | Teshale×14446 | 88.00 | 1.00 | 11.00 | 16.00 | 127.00 | 4.00 | 107.67 | 23.22 | 0.78 | 82.66 |
| 134 | Teshale×14446 | 81.00 | 0.50 | 9.80 | 13.70 | 124.50 | 3.50 | 56.95 | 24.17 | 0.80 | 45.74 |
| 136 | Teshale×14446 | 82.00 | 0.70 | 9.60 | 14.90 | 122.50 | 1.50 | 49.75 | 22.52 | 0.83 | 42.35 |
| 137 | Teshale×14446 | 88.00 | 0.00 | 9.70 | 3.10 | 122.00 | 3.00 | 59.84 | 20.63 | 0.73 | 44.27 |
| 139 | Teshale×14446 | 83.00 | 0.50 | 12.09 | 8.17 | 124.00 | 3.00 | 89.48 | 26.98 | 0.80 | 71.53 |
| 141 | Teshale×14446 | 78.00 | 0.80 | 11.00 | 3.60 | 117.00 | 3.00 | 158.38 | 27.37 | 0.81 | 127.41 |
| 142 | Teshale×14446 | 81.50 | 0.20 | 9.70 | 14.10 | 120.00 | 3.00 | 45.90 | 17.79 | 0.76 | 34.62 |
| 143 | Teshale×14446 | 81.50 | 0.10 | 10.50 | 3.50 | 121.00 | 3.50 | 89.48 | 22.54 | 0.61 | 55.78 |
| 144 | Teshale×14446 | 82.00 | 0.00 | 8.40 | 10.40 | 120.00 | 3.00 | 35.13 | 26.68 | 0.73 | 25.97 |
| 145 | Teshale×14446 | 91.00 | 1.00 | 9.00 | 0.00 | 117.00 | 2.00 | 123.50 | 27.42 | 0.87 | 107.49 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 146 | Teshale×14446 | 85.50 | 0.20 | 10.30 | 1.70 | 125.00 | 3.50 | 69.50 | 17.81 | 0.75 | 52.49 |
| 147 | Teshale×14446 | 88.00 | 0.00 | 9.70 | 3.40 | 119.50 | 3.50 | 67.90 | 18.11 | 0.78 | 52.03 |
| 148 | Teshale×14446 | 88.50 | 0.55 | 9.70 | 3.30 | 123.50 | 2.50 | 66.78 | 17.75 | 0.73 | 48.95 |
| 149 | Teshale×14446 | 84.00 | 0.00 | 12.00 | 0.00 | 125.00 | 3.00 | 76.00 | 18.72 | 0.68 | 52.06 |
| 150 | Teshale×14446 | 86.00 | 1.25 | 10.09 | 4.00 | 127.00 | 2.00 | 142.25 | 27.61 | 0.81 | 114.47 |
| 151 | Teshale×14446 | 89.00 | 0.34 | 10.77 | 8.84 | 127.50 | 3.00 | 59.85 | 17.95 | 0.67 | 40.32 |
| 152 | Teshale×14446 | 88.50 | 0.00 | 9.40 | 5.50 | 121.50 | 3.00 | 55.75 | 18.47 | 0.75 | 42.27 |
| 153 | Teshale×14446 | 89.00 | 0.00 | 10.00 | 3.67 | 125.00 | 4.00 | 63.50 | 13.83 | 0.68 | 42.16 |
| 154 | Teshale×14446 | 92.00 | 0.42 | 10.17 | 2.50 | 125.50 | 2.50 | 72.50 | 19.43 | 0.75 | 54.96 |
| 155 | Teshale×14446 | 91.00 | 0.00 | 11.00 | 0.00 | 120.00 | 2.00 | 86.00 | 15.14 | 0.69 | 58.39 |
| 156 | Teshale×14446 | 79.00 | 0.60 | 8.80 | 14.20 | 120.00 | 4.00 | 72.80 | 27.45 | 0.77 | 57.15 |
| 157 | Teshale×14446 | 86.00 | 0.00 | 10.15 | 2.70 | 121.00 | 2.50 | 50.20 | 20.82 | 0.78 | 38.92 |
| 158 | Teshale×14446 | 83.50 | 0.95 | 11.05 | 8.00 | 119.50 | 3.50 | 90.25 | 27.38 | 0.78 | 71.30 |
| 159 | Teshale×14446 | 84.00 | 0.00 | 10.00 | 7.00 | 117.00 | 3.00 | 93.00 | 17.56 | 0.85 | 78.37 |
| 160 | Teshale×14446 | 89.50 | 0.80 | 10.60 | 5.30 | 130.50 | 2.50 | 73.83 | 26.28 | 0.73 | 53.21 |
| 161 | Teshale×14446 | 79.50 | 0.90 | 9.70 | 8.50 | 118.50 | 3.00 | 71.22 | 32.50 | 0.78 | 56.89 |
| 162 | Teshale×14446 | 78.50 | 1.35 | 10.18 | 8.80 | 116.00 | 3.00 | 57.40 | 23.23 | 0.77 | 43.78 |
| 163 | Teshale×14446 | 90.50 | 0.13 | 11.00 | 1.68 | 129.50 | 2.50 | 64.63 | 23.84 | 0.75 | 48.94 |
| 164 | Teshale×14446 | 79.50 | 0.30 | 9.60 | 7.50 | 117.00 | 3.50 | 99.95 | 25.75 | 0.80 | 79.85 |
| 165 | Teshale×14446 | 81.50 | 1.84 | 9.74 | 13.74 | 123.50 | 1.50 | 49.79 | 32.83 | 0.84 | 42.06 |
| 166 | Teshale×14446 | 80.00 | 0.30 | 11.40 | 7.70 | 119.50 | 3.50 | 74.00 | 28.30 | 0.79 | 56.95 |
| 167 | Teshale×14446 | 74.00 | 0.88 | 10.25 | 12.18 | 116.00 | 3.50 | 74.55 | 26.77 | 0.80 | 59.59 |
| 168 | Teshale×14446 | 85.50 | 0.60 | 8.40 | 4.60 | 122.50 | 3.50 | 76.10 | 23.06 | 0.70 | 55.33 |
| 169 | Teshale×14446 | 82.00 | 0.10 | 10.85 | 18.00 | 123.00 | 1.50 | 67.40 | 33.27 | 0.79 | 53.94 |
| 171 | Teshale×14446 | 82.00 | 0.53 | 10.00 | 14.73 | 122.50 | 2.00 | 106.59 | 23.40 | 0.79 | 83.47 |
| 172 | Teshale×14446 | 86.50 | 0.75 | 10.17 | 11.59 | 125.00 | 2.50 | 70.34 | 31.17 | 0.83 | 57.27 |
| 173 | Teshale×14446 | 88.00 | 0.17 | 9.67 | 4.17 | 127.00 | 2.50 | 77.25 | 23.65 | 0.71 | 53.79 |
| 174 | Teshale×14446 | 81.50 | 0.30 | 9.10 | 7.90 | 117.00 | 4.00 | 50.25 | 18.03 | 0.65 | 33.99 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | Teshale×14446 | 86.00 | 0.00 | 9.00 | 8.20 | 123.00 | 4.00 | 50.70 | 18.15 | 0.83 | 40.99 |
| 176 | Teshale×14446 | 76.50 | 0.34 | 9.47 | 5.07 | 121.50 | 2.00 | 76.50 | 33.19 | 0.64 | 44.07 |
| 177 | Teshale×14446 | 81.50 | 0.00 | 8.70 | 11.40 | 118.50 | 3.50 | 39.80 | 19.92 | 0.79 | 30.92 |
| 178 | Teshale×14446 | 83.50 | 0.30 | 10.50 | 7.60 | 122.00 | 4.00 | 58.20 | 16.96 | 0.74 | 42.20 |
| 179 | Teshale×10876 | 85.00 | 0.00 | 10.35 | 7.25 | 122.00 | 3.00 | 74.29 | 19.64 | 0.70 | 52.41 |
| 180 | Teshale×10876 | 80.00 | 1.10 | 10.10 | 7.70 | 117.00 | 3.00 | 65.45 | 19.82 | 0.82 | 53.00 |
| 181 | Teshale×10876 | 91.00 | 0.00 | 9.50 | 2.58 | 126.00 | 3.00 | 39.43 | 14.99 | 0.68 | 27.95 |
| 182 | Teshale×10876 | 84.50 | 0.33 | 10.90 | 5.08 | 121.50 | 3.00 | 72.30 | 20.31 | 0.77 | 55.89 |
| 183 | Teshale×10876 | 89.00 | 0.00 | 9.50 | 0.00 | 125.00 | 4.00 | 50.00 | 14.61 | 0.69 | 34.07 |
| 184 | Teshale×10876 | 90.00 | 0.20 | 10.40 | 3.00 | 126.00 | 4.00 | 91.30 | 19.93 | 0.78 | 70.56 |
| 185 | Teshale×10876 | 80.00 | 0.17 | 8.50 | 16.04 | 117.50 | 4.00 | 35.25 | 19.77 | 0.70 | 25.22 |
| 186 | Teshale×10876 | 89.00 | 0.00 | 9.75 | 6.25 | 126.00 | 4.00 | 50.67 | 12.87 | 0.68 | 35.70 |
| 187 | Teshale×10876 | 82.50 | 0.40 | 9.10 | 1.70 | 118.50 | 3.00 | 79.65 | 20.03 | 0.69 | 58.32 |
| 188 | Teshale×10876 | 86.00 | 0.00 | 10.80 | 8.00 | 119.00 | 3.00 | 89.60 | 22.68 | 0.65 | 57.33 |
| 189 | Teshale×10876 | 85.00 | 0.00 | 9.18 | 4.18 | 121.00 | 3.50 | 61.02 | 21.85 | 0.78 | 48.28 |
| 190 | Teshale×10876 | 89.50 | 1.00 | 9.75 | 3.00 | 124.00 | 2.00 | 57.88 | 21.00 | 0.65 | 42.91 |
| 192 | Teshale×10876 | 85.50 | 0.50 | 11.14 | 7.20 | 120.00 | 4.00 | 64.00 | 16.21 | 0.67 | 44.86 |
| 193 | Teshale×10876 | 84.50 | 0.10 | 10.30 | 4.70 | 119.50 | 3.00 | 97.55 | 21.09 | 0.79 | 76.36 |
| 194 | Teshale×10876 | 90.00 | 0.00 | 9.70 | 2.60 | 122.00 | 3.50 | 41.50 | 15.34 | 0.59 | 25.80 |
| 195 | Teshale×10876 | 89.00 | 0.10 | 9.00 | 11.20 | 126.00 | 2.50 | 48.35 | 23.66 | 0.71 | 34.88 |
| 196 | Teshale×10876 | 82.50 | 1.18 | 9.60 | 2.75 | 124.00 | 3.00 | 99.60 | 24.75 | 0.82 | 80.05 |
| 197 | Teshale×10876 | 81.50 | 0.43 | 10.94 | 4.80 | 117.00 | 4.00 | 78.07 | 18.53 | 0.73 | 56.56 |
| 198 | Teshale×10876 | 91.00 | 0.50 | 10.00 | 12.00 | 127.00 | 2.00 | 120.00 | 22.40 | 0.64 | 76.85 |
| 199 | Teshale×10876 | 84.50 | 0.30 | 9.85 | 4.90 | 121.50 | 3.00 | 74.38 | 21.01 | 0.76 | 57.03 |
| 200 | Teshale×10876 | 84.50 | 0.00 | 9.45 | 6.10 | 121.50 | 4.00 | 61.10 | 19.67 | 0.68 | 41.37 |
| 202 | Teshale×10876 | 90.00 | 0.45 | 10.35 | 8.20 | 124.00 | 2.00 | 88.48 | 22.63 | 0.80 | 69.39 |
| 203 | Teshale×10876 | 86.00 | 0.20 | 8.40 | 5.60 | 118.00 | 3.00 | 44.60 | 14.44 | 0.69 | 31.33 |
| 204 | Teshale×10876 | 84.00 | 0.10 | 10.30 | 7.20 | 121.00 | 4.00 | 73.55 | 16.24 | 0.73 | 54.94 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 205 | Teshale×10876 | 84.00 | 0.00 | 10.00 | 4.00 | 119.00 | 1.00 | 122.67 | 27.30 | 0.83 | 102.33 |
| 206 | Teshale×10876 | 86.00 | 0.40 | 9.00 | 4.20 | 122.00 | 3.50 | 51.94 | 17.11 | 0.66 | 36.03 |
| 207 | Teshale×10876 | 90.00 | 0.33 | 10.50 | 0.84 | 122.00 | 3.00 | 58.84 | 19.86 | 0.72 | 42.50 |
| 208 | Teshale×10876 | 81.50 | 0.80 | 9.00 | 13.10 | 120.00 | 3.00 | 92.10 | 23.81 | 0.90 | 84.27 |
| 209 | Teshale×10876 | 84.00 | 0.20 | 10.20 | 0.00 | 118.00 | 5.00 | 65.40 | 15.69 | 0.83 | 54.03 |
| 210 | Teshale×10876 | 90.50 | 0.40 | 9.50 | 1.80 | 123.50 | 2.50 | 62.40 | 14.87 | 0.77 | 48.37 |
| 211 | Teshale×10876 | 76.50 | 0.20 | 8.50 | 17.40 | 117.00 | 4.00 | 42.95 | 19.70 | 0.80 | 34.84 |
| 212 | Teshale×10876 | 84.50 | 0.10 | 9.80 | 7.30 | 123.00 | 2.00 | 69.55 | 24.85 | 0.81 | 57.15 |
| 213 | Teshale×10876 | 84.50 | 0.78 | 10.73 | 1.25 | 121.50 | 4.00 | 73.65 | 17.91 | 0.75 | 54.84 |
| 214 | Teshale×10876 | 73.00 | 0.80 | 10.20 | 4.80 | 118.00 | 4.00 | 100.00 | 26.43 | 0.86 | 85.12 |
| 215 | Teshale×10876 | 83.00 | 0.25 | 9.68 | 9.80 | 118.50 | 4.00 | 63.57 | 15.12 | 0.73 | 46.17 |
| 217 | Teshale×10876 | 86.00 | 0.30 | 10.70 | 9.80 | 122.00 | 3.00 | 75.45 | 18.14 | 0.74 | 57.38 |
| 218 | Teshale×10876 | 78.00 | 0.60 | 9.80 | 5.00 | 115.00 | 4.00 | 78.50 | 21.19 | 0.74 | 58.59 |
| 219 | Teshale×10876 | 88.50 | 0.50 | 11.25 | 3.63 | 123.50 | 2.50 | 94.20 | 21.47 | 0.76 | 71.94 |
| 220 | Teshale×10876 | 83.50 | 0.85 | 9.85 | 5.80 | 121.00 | 2.50 | 85.07 | 26.18 | 0.82 | 71.33 |
| 221 | Teshale×10876 | 81.00 | 0.10 | 9.10 | 8.80 | 117.50 | 3.00 | 51.60 | 18.31 | 0.84 | 44.02 |
| 222 | Teshale×10876 | 85.00 | 0.00 | 9.80 | 7.80 | 125.00 | 1.00 | 112.90 | 27.64 | 0.80 | 89.97 |
| 223 | Teshale×10876 | 87.00 | 0.60 | 9.05 | 10.75 | 123.00 | 2.50 | 75.68 | 22.52 | 0.80 | 60.06 |
| 224 | Teshale×10876 | 83.50 | 0.40 | 9.10 | 10.70 | 124.00 | 3.00 | 78.35 | 20.07 | 0.82 | 63.13 |
| 225 | Teshale×10876 | 84.50 | 0.10 | 9.80 | 3.10 | 122.50 | 2.50 | 63.05 | 21.39 | 0.73 | 45.78 |
| 226 | Teshale×10876 | 85.50 | 0.00 | 9.97 | 9.64 | 125.00 | 4.00 | 49.93 | 15.66 | 0.80 | 40.07 |
| 227 | Teshale×10876 | 85.50 | 0.50 | 11.30 | 6.80 | 124.00 | 3.00 | 83.15 | 20.15 | 0.70 | 60.88 |
| 228 | Teshale×10876 | 89.00 | 1.20 | 10.30 | 6.60 | 127.00 | 3.50 | 77.05 | 16.51 | 0.59 | 49.36 |
| 229 | Teshale×10876 | 83.00 | 0.00 | 8.90 | 13.15 | 118.50 | 3.50 | 62.65 | 23.47 | 0.78 | 49.62 |
| 230 | Teshale×10876 | 81.50 | 1.05 | 10.85 | 4.45 | 123.50 | 3.50 | 95.23 | 22.41 | 0.77 | 72.99 |
| 231 | Teshale×10876 | 82.00 | 0.60 | 11.00 | 2.40 | 117.00 | 4.00 | 80.50 | 19.71 | 0.81 | 64.13 |
| 232 | Teshale×10876 | 86.00 | 0.33 | 8.67 | 10.33 | 129.00 | 3.00 | 89.67 | 22.77 | 0.95 | 84.85 |
| 233 | Teshale×10876 | 86.00 | 0.55 | 9.45 | 6.30 | 125.00 | 3.50 | 47.75 | 13.94 | 0.70 | 33.45 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 234 | Teshale×10876 | 83.00 | 0.00 | 8.90 | 9.30 | 122.50 | 3.00 | 62.72 | 19.10 | 0.78 | 48.77 |
| 235 | Teshale×10876 | 85.00 | 0.50 | 9.10 | 16.30 | 124.00 | 2.50 | 65.65 | 21.88 | 0.80 | 52.78 |
| 236 | Teshale×10876 | 80.50 | 0.20 | 9.90 | 10.40 | 121.00 | 2.50 | 101.65 | 25.68 | 0.80 | 80.73 |
| 237 | Teshale×10876 | 84.50 | 0.10 | 8.20 | 15.40 | 122.00 | 4.00 | 46.70 | 16.63 | 0.77 | 35.35 |
| 238 | Teshale×10876 | 82.50 | 1.40 | 9.50 | 9.80 | 121.00 | 2.50 | 95.45 | 27.22 | 0.80 | 77.68 |
| 239 | Teshale×10876 | 82.50 | 0.30 | 10.10 | 7.38 | 117.00 | 3.50 | 54.70 | 16.20 | 0.71 | 40.10 |
| 240 | Teshale×10876 | 81.00 | 0.20 | 9.40 | 6.00 | 117.50 | 4.00 | 61.00 | 19.43 | 0.78 | 47.51 |
| 241 | Teshale×10876 | 91.50 | 0.00 | 9.80 | 4.30 | 125.50 | 3.00 | 49.88 | 16.74 | 0.78 | 38.41 |
| 242 | Teshale×10876 | 85.00 | 0.00 | 9.00 | 18.60 | 120.00 | 3.00 | 72.70 | 21.72 | 0.78 | 55.37 |
| 243 | Teshale×10876 | 85.50 | 0.10 | 11.00 | 2.50 | 123.00 | 3.50 | 82.40 | 20.53 | 0.76 | 63.05 |
| 244 | Teshale×10876 | 84.00 | 0.00 | 8.67 | 3.33 | 127.00 | 2.00 | 77.50 | 20.17 | 0.71 | 54.70 |
| 245 | Teshale×10876 | 82.50 | 0.10 | 10.30 | 6.50 | 118.50 | 3.50 | 68.30 | 17.24 | 0.88 | 59.83 |
| 246 | Teshale×10876 | 90.00 | 0.70 | 9.30 | 2.30 | 123.50 | 4.00 | 71.05 | 14.60 | 0.68 | 48.41 |
| 247 | Teshale×10876 | 90.50 | 0.00 | 10.50 | 12.50 | 128.00 | 2.50 | 85.50 | 15.99 | 0.87 | 75.28 |
| 248 | Teshale×10876 | 88.00 | 0.20 | 10.60 | 5.00 | 120.00 | 3.00 | 63.50 | 16.81 | 0.82 | 52.56 |
| 249 | Teshale×10876 | 95.00 | 2.00 | 10.00 | 6.00 | 127.00 | 2.00 | 49.50 | 16.19 | 0.93 | 45.68 |
| 250 | Teshale×10876 | 82.00 | 0.25 | 9.50 | 2.00 | 123.00 | 3.00 | 62.70 | 16.74 | 0.67 | 41.90 |
| 251 | Teshale×10876 | 87.00 | 0.50 | 8.60 | 8.57 | 121.00 | 3.00 | 57.88 | 19.45 | 0.78 | 44.70 |
| 252 | Teshale×10876 | 88.00 | 0.63 | 9.63 | 10.50 | 122.50 | 2.00 | 67.90 | 24.97 | 0.77 | 52.17 |
| 253 | Teshale×10876 | 66.50 | 0.00 | 11.30 | 10.20 | 117.50 | 2.50 | 99.65 | 28.03 | 0.84 | 83.76 |
| 254 | Teshale×10876 | 82.00 | 0.33 | 9.00 | 12.67 | 118.00 | 5.00 | 48.67 | 18.41 | 0.75 | 37.30 |
| 255 | Teshale×10876 | 86.50 | 0.25 | 9.00 | 11.63 | 123.00 | 2.50 | 61.80 | 23.12 | 0.79 | 49.22 |
| 256 | Teshale×10876 | 86.50 | 0.27 | 8.74 | 1.40 | 128.00 | 3.50 | 73.95 | 23.83 | 0.77 | 56.27 |
| 257 | Teshale×10876 | 74.00 | 0.60 | 10.00 | 13.00 | 116.00 | 4.00 | 94.50 | 22.55 | 0.83 | 76.68 |
| 258 | Teshale×10876 | 87.00 | 0.00 | 9.90 | 6.30 | 119.50 | 3.00 | 79.60 | 19.82 | 0.75 | 59.46 |
| 259 | Teshale×10876 | 81.00 | 0.35 | 11.05 | 7.70 | 117.50 | 3.00 | 99.23 | 21.88 | 0.80 | 79.23 |
| 260 | Teshale×10876 | 90.50 | 1.25 | 11.09 | 4.67 | 128.00 | 1.50 | 65.92 | 21.41 | 0.84 | 55.37 |
| 261 | Teshale×10876 | 91.00 | 0.50 | 9.50 | 0.00 | 127.00 | 3.00 | 70.50 | 24.71 | 0.82 | 58.95 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 262 | Teshale×10876 | 88.00 | 0.10 | 10.50 | 5.20 | 122.50 | 2.50 | 89.33 | 29.55 | 0.81 | 73.21 |
| 263 | Teshale×10876 | 84.00 | 0.63 | 10.25 | 13.63 | 122.00 | 3.00 | 91.39 | 22.50 | 0.72 | 65.90 |
| 264 | Teshale×10876 | 86.50 | 0.40 | 9.20 | 10.00 | 123.00 | 3.50 | 60.57 | 18.16 | 0.78 | 48.18 |
| 265 | Teshale×10876 | 85.00 | 1.00 | 10.38 | 4.50 | 119.50 | 2.00 | 128.43 | 25.69 | 0.81 | 104.55 |
| 266 | Teshale×10876 | 84.50 | 0.20 | 9.60 | 6.00 | 119.50 | 3.00 | 92.50 | 22.53 | 0.75 | 70.37 |
| 267 | Teshale×10876 | 88.50 | 0.00 | 10.92 | 1.50 | 125.00 | 2.00 | 74.25 | 19.69 | 0.78 | 58.52 |
| 268 | Teshale×10876 | 86.00 | 0.70 | 10.57 | 10.07 | 124.50 | 3.50 | 39.38 | 14.71 | 0.83 | 32.66 |
| 269 | Teshale×10876 | 91.00 | 0.00 | 10.00 | 0.00 | 127.00 | 1.00 | 60.50 | 18.60 | 0.68 | 41.89 |
| 270 | Teshale×10876 | 73.00 | 0.40 | 8.80 | 8.30 | 117.00 | 4.00 | 58.40 | 23.20 | 0.80 | 46.95 |
| 271 | Teshale×10876 | 80.50 | 0.40 | 10.10 | 3.10 | 118.50 | 3.00 | 80.90 | 23.05 | 0.78 | 63.34 |
| 272 | Teshale×10876 | 80.50 | 1.28 | 12.03 | 2.10 | 121.00 | 3.50 | 100.48 | 21.61 | 0.75 | 76.48 |
| 273 | Teshale×10876 | 90.50 | 0.00 | 11.50 | 0.00 | 122.50 | 2.00 | 83.84 | 17.70 | 0.70 | 59.79 |
| 274 | Teshale×10876 | 78.00 | 0.90 | 10.50 | 10.20 | 121.50 | 2.00 | 102.85 | 30.64 | 0.82 | 84.11 |
| 275 | Teshale×10876 | 92.50 | 1.14 | 9.77 | 2.70 | 123.50 | 3.50 | 48.38 | 18.07 | 0.68 | 34.38 |
| 276 | Teshale×10876 | 79.50 | 0.47 | 9.60 | 5.54 | 119.50 | 3.50 | 78.78 | 23.56 | 0.78 | 61.13 |
| 277 | Teshale×10876 | 86.50 | 0.00 | 10.20 | 3.70 | 119.50 | 3.00 | 69.89 | 19.28 | 0.81 | 57.02 |
| 278 | Teshale×10876 | 89.50 | 0.35 | 9.10 | 11.55 | 122.00 | 2.00 | 47.60 | 15.39 | 0.69 | 33.11 |
| 279 | Teshale×10876 | 87.00 | 0.45 | 10.83 | 6.90 | 121.00 | 3.50 | 59.95 | 20.24 | 0.77 | 48.10 |
| 280 | Teshale×10876 | 85.50 | 0.46 | 10.34 | 12.88 | 122.00 | 3.50 | 54.50 | 18.15 | 0.77 | 41.40 |
| 281 | Teshale×10876 | 83.50 | 0.30 | 9.90 | 5.50 | 124.00 | 3.50 | 83.62 | 22.78 | 0.79 | 63.92 |
| 282 | Teshale×10876 | 82.00 | 0.00 | 9.25 | 7.75 | 118.00 | 3.00 | 51.63 | 22.84 | 0.82 | 41.77 |
| 283 | Teshale×10876 | 86.00 | 0.50 | 10.50 | 6.50 | 121.50 | 3.50 | 95.13 | 25.99 | 0.82 | 77.47 |
| 284 | Teshale×10876 | 85.00 | 0.60 | 10.70 | 6.90 | 119.50 | 2.50 | 97.90 | 24.10 | 0.78 | 76.30 |
| 285 | Teshale×10876 | 85.50 | 0.00 | 9.80 | 2.60 | 118.50 | 3.00 | 53.73 | 15.19 | 0.71 | 37.08 |
| 286 | Teshale×10876 | 86.00 | 0.13 | 9.38 | 14.05 | 122.50 | 3.00 | 53.70 | 20.36 | 0.74 | 40.12 |
| 287 | Teshale×10876 | 89.00 | 0.00 | 9.20 | 1.80 | 125.00 | 3.00 | 83.60 | 21.82 | 0.74 | 63.12 |
| 288 | Teshale×10876 | 82.00 | 0.10 | 8.70 | 10.40 | 122.50 | 3.50 | 61.90 | 7.50 | 0.72 | 45.23 |
| 289 | Teshale×10876 | 88.50 | 0.46 | 8.59 | 10.33 | 126.50 | 2.00 | 66.23 | 20.45 | 0.78 | 52.04 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 290 | Teshale×10876 | 80.50 | 0.88 | 9.53 | 12.03 | 121.50 | 4.00 | 69.63 | 21.60 | 0.75 | 53.30 |
| 291 | Teshale×10876 | 84.00 | 0.34 | 8.84 | 12.00 | 122.50 | 1.00 | 111.25 | 29.70 | 0.69 | 78.40 |
| 292 | Teshale×10876 | 82.50 | 0.60 | 10.00 | 11.20 | 118.00 | 2.50 | 93.95 | 25.72 | 0.79 | 74.52 |
| 293 | Teshale×10876 | 86.50 | 2.00 | 9.50 | 7.00 | 122.50 | 2.50 | 47.88 | 24.78 | 0.74 | 37.96 |
| 294 | Teshale×10876 | 82.50 | 0.00 | 9.00 | 11.46 | 121.00 | 3.00 | 76.75 | 21.46 | 0.79 | 61.32 |
| 295 | Teshale×10876 | 76.00 | 0.40 | 9.40 | 11.90 | 117.50 | 3.50 | 72.92 | 19.18 | 0.72 | 56.92 |
| 296 | Teshale×10876 | 87.00 | 0.25 | 11.38 | 10.40 | 122.00 | 2.50 | 87.85 | 20.52 | 0.77 | 68.50 |
| 297 | Teshale×10876 | 84.00 | 0.34 | 8.67 | 12.17 | 123.00 | 3.00 | 92.42 | 21.81 | 0.82 | 74.06 |
| 298 | Teshale×10876 | 81.50 | 0.30 | 10.90 | 7.70 | 118.50 | 3.50 | 73.95 | 19.92 | 0.81 | 59.43 |
| 299 | Teshale×10876 | 84.00 | 0.70 | 10.70 | 5.50 | 118.50 | 3.50 | 73.03 | 19.36 | 0.77 | 56.96 |
| 300 | Teshale×10876 | 82.00 | 0.63 | 9.35 | 8.78 | 122.00 | 1.00 | 84.27 | 27.63 | 0.64 | 52.99 |
| 301 | Teshale×10876 | 88.50 | 0.47 | 9.80 | 4.88 | 130.50 | 1.50 | 93.19 | 22.72 | 0.81 | 74.36 |
| 302 | Teshale×10876 | 83.00 | 1.00 | 10.10 | 4.60 | 119.00 | 2.50 | 104.50 | 25.59 | 0.80 | 83.38 |
| 303 | Teshale×10876 | 86.00 | 3.00 | 10.00 | 5.00 | 119.00 | 2.00 | 56.88 | 21.21 | 0.76 | 42.66 |
| 304 | Teshale×10876 | 79.00 | 0.48 | 8.85 | 18.48 | 114.50 | 3.50 | 57.90 | 21.83 | 0.79 | 45.54 |
| 305 | Teshale×10876 | 84.00 | 0.70 | 10.70 | 8.50 | 128.50 | 3.00 | 71.73 | 20.80 | 0.82 | 58.59 |
| 306 | Teshale×10876 | 85.00 | 0.00 | 9.60 | 5.30 | 125.00 | 4.50 | 42.15 | 15.12 | 0.72 | 30.63 |
| 307 | Teshale×10876 | 81.50 | 0.50 | 10.75 | 7.25 | 122.00 | 3.50 | 82.57 | 21.24 | 0.77 | 63.67 |
| 308 | Teshale×10876 | 91.50 | 0.10 | 10.40 | 0.40 | 126.00 | 3.00 | 55.00 | 19.33 | 0.74 | 40.51 |
| 309 | Teshale×10876 | 83.50 | 0.00 | 9.20 | 18.50 | 124.00 | 2.50 | 58.65 | 18.54 | 0.79 | 46.40 |
| 310 | Teshale×10876 | 89.00 | 0.30 | 9.35 | 4.20 | 118.50 | 3.50 | 49.59 | 19.15 | 0.72 | 35.46 |
| 311 | Teshale×10876 | 88.00 | 0.40 | 9.05 | 5.70 | 122.00 | 2.50 | 85.19 | 24.16 | 0.72 | 63.37 |
| 312 | Teshale×10876 | 86.00 | 1.00 | 10.00 | 0.00 | 123.00 | 3.00 | 33.00 | 11.71 | 0.59 | 20.03 |
| 313 | Teshale×10876 | 83.00 | 0.92 | 10.75 | 9.67 | 128.00 | 1.50 | 138.17 | 21.99 | 0.82 | 114.47 |
| 314 | Teshale×10876 | 86.00 | 0.00 | 10.84 | 8.84 | 128.50 | 3.00 | 89.50 | 23.81 | 0.83 | 75.04 |
| 315 | Teshale×10876 | 79.50 | 0.60 | 9.70 | 11.40 | 118.50 | 3.50 | 68.46 | 20.78 | 0.77 | 52.26 |
| 316 | Teshale×10876 | 88.50 | 1.04 | 10.10 | 8.97 | 127.00 | 3.50 | 49.94 | 18.10 | 0.75 | 36.76 |
| 317 | Teshale×10876 | 93.00 | 0.70 | 11.50 | 0.00 | 127.00 | 2.50 | 69.65 | 19.31 | 0.77 | 56.15 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 318 | Teshale×10876 | 92.50 | 0.00 | 10.58 | 4.38 | 129.00 | 2.50 | 51.38 | 19.00 | 0.70 | 36.22 |
| 319 | Teshale×10876 | 83.00 | 0.38 | 10.42 | 6.59 | 121.00 | 3.00 | 93.59 | 22.12 | 0.78 | 71.76 |
| 320 | Teshale×10876 | 79.50 | 0.44 | 8.14 | 10.24 | 119.50 | 4.00 | 66.32 | 18.62 | 0.75 | 48.77 |
| 321 | Teshale×10876 | 83.50 | 0.20 | 10.40 | 5.00 | 121.50 | 4.00 | 66.94 | 16.65 | 0.63 | 41.09 |
| 322 | Teshale×10876 | 85.00 | 0.00 | 10.80 | 8.60 | 122.50 | 2.00 | 128.50 | 26.59 | 0.82 | 106.30 |
| 323 | Teshale×10876 | 92.00 | 0.00 | 11.00 | 0.60 | 125.00 | 4.00 | 52.60 | 17.56 | 0.73 | 38.09 |
| 324 | Teshale×10876 | 81.50 | 1.43 | 11.33 | 5.78 | 119.50 | 2.50 | 102.77 | 23.18 | 0.80 | 81.18 |
| 325 | Teshale×10876 | 86.00 | 0.00 | 10.00 | 3.00 | 125.00 | 2.00 | 102.00 | 21.49 | 0.76 | 79.17 |
| 326 | Teshale×10876 | 95.00 | 0.33 | 10.33 | 3.20 | 130.00 | 3.00 | 33.50 | 16.51 | 0.57 | 18.89 |
| 327 | Teshale×10876 | 86.00 | 0.75 | 11.00 | 0.00 | 125.00 | 4.00 | 49.67 | 13.50 | 0.72 | 36.48 |
| 328 | Teshale×10876 | 81.00 | 0.20 | 10.40 | 12.10 | 120.00 | 3.00 | 71.00 | 24.76 | 0.81 | 57.71 |
| 329 | Teshale×10876 | 81.00 | 1.00 | 10.50 | 9.10 | 124.00 | 3.50 | 87.72 | 24.78 | 0.82 | 71.08 |
| 331 | Teshale×10876 | 84.50 | 0.33 | 8.73 | 12.28 | 123.50 | 3.00 | 95.82 | 25.96 | 0.81 | 78.13 |
| 332 | Teshale×10876 | 91.50 | 0.10 | 11.10 | 0.30 | 120.00 | 3.00 | 56.90 | 15.57 | 0.66 | 37.56 |
| 333 | Teshale×10876 | 82.00 | 0.44 | 11.10 | 6.20 | 120.00 | 3.00 | 85.15 | 22.45 | 0.81 | 68.33 |
| 334 | Teshale×10876 | 88.00 | 0.67 | 10.54 | 3.84 | 119.50 | 3.50 | 44.35 | 17.08 | 0.75 | 33.10 |
| 335 | Teshale×10876 | 85.00 | 1.00 | 10.50 | 0.00 | 120.00 | 3.00 | 83.50 | 21.41 | 0.69 | 58.79 |
| 336 | Teshale×10876 | 79.50 | 1.25 | 10.25 | 5.75 | 121.00 | 2.50 | 86.00 | 20.60 | 0.81 | 68.92 |
| 337 | Teshale×10876 | 91.00 | 0.40 | 12.00 | 1.80 | 125.00 | 4.00 | 82.40 | 18.41 | 0.79 | 63.66 |
| 338 | Teshale×10876 | 85.50 | 0.13 | 10.08 | 2.40 | 124.50 | 4.00 | 62.33 | 13.10 | 0.64 | 39.86 |
| 339 | Teshale×10876 | 93.50 | 0.75 | 12.00 | 3.63 | 128.00 | 1.00 | 78.38 | 18.98 | 0.80 | 62.68 |
| 340 | Teshale×10876 | 90.00 | 1.00 | 8.50 | 7.75 | 122.50 | 3.00 | 79.32 | 17.88 | 0.73 | 58.29 |
| 341 | Teshale×10876 | 88.00 | 0.00 | 11.00 | 6.75 | 117.00 | 3.00 | 79.13 | 19.29 | 0.77 | 60.02 |
| 342 | Teshale×10876 | 79.00 | 0.20 | 8.70 | 12.60 | 118.50 | 3.50 | 60.50 | 23.64 | 0.77 | 47.09 |
| 343 | Teshale×10876 | 86.00 | 1.60 | 10.60 | 2.80 | 126.00 | 2.00 | 82.00 | 24.96 | 0.81 | 66.42 |
| 344 | Teshale×10876 | 83.00 | 0.20 | 9.80 | 8.80 | 122.50 | 3.00 | 73.12 | 19.82 | 0.77 | 56.55 |
| 345 | Teshale×10876 | 82.00 | 1.70 | 10.45 | 14.90 | 122.50 | 3.00 | 64.15 | 21.82 | 0.76 | 48.90 |
| 346 | Teshale×10876 | 79.50 | 0.30 | 8.80 | 13.70 | 122.00 | 2.00 | 60.50 | 30.99 | 0.82 | 49.98 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 347 | Teshale×10876 | 83.50 | 0.17 | 8.24 | 12.57 | 123.00 | 3.50 | 38.73 | 14.71 | 0.67 | 27.19 |
| 348 | Teshale×10876 | 81.50 | 0.00 | 8.90 | 16.30 | 122.00 | 2.50 | 44.82 | 18.13 | 0.74 | 34.23 |
| 349 | Teshale×10876 | 76.00 | 0.00 | 11.40 | 7.60 | 116.00 | 4.00 | 78.60 | 19.84 | 0.95 | 72.70 |
| 350 | Teshale×15428 | 75.50 | 0.63 | 9.03 | 8.93 | 117.00 | 2.50 | 58.78 | 17.21 | 0.65 | 40.50 |
| 351 | Teshale×15428 | 76.50 | 0.85 | 10.30 | 18.90 | 119.50 | 2.50 | 86.80 | 21.72 | 0.76 | 65.89 |
| 352 | Teshale×15428 | 88.50 | 0.25 | 9.80 | 8.05 | 129.50 | 2.50 | 126.75 | 16.43 | 0.68 | 86.42 |
| 353 | Teshale×15428 | 88.00 | 0.50 | 9.17 | 9.67 | 121.00 | 2.50 | 83.00 | 20.53 | 0.78 | 63.97 |
| 354 | Teshale×15428 | 87.50 | 0.40 | 10.30 | 4.50 | 124.00 | 3.00 | 53.45 | 14.50 | 0.69 | 36.75 |
| 355 | Teshale×15428 | 82.00 | 1.30 | 10.80 | 7.40 | 122.00 | 3.50 | 84.65 | 17.47 | 0.69 | 62.30 |
| 356 | Teshale×15428 | 91.00 | 0.67 | 10.33 | 6.00 | 129.00 | 2.00 | 77.40 | 19.23 | 0.73 | 57.89 |
| 357 | Teshale×15428 | 85.50 | 0.55 | 11.10 | 7.25 | 124.00 | 2.50 | 87.54 | 22.55 | 0.79 | 68.95 |
| 358 | Teshale×15428 | 84.00 | 0.20 | 9.40 | 6.00 | 123.00 | 4.00 | 89.00 | 22.40 | 0.73 | 66.44 |
| 359 | Teshale×15428 | 86.00 | 0.25 | 8.88 | 12.00 | 122.50 | 3.50 | 39.50 | 16.03 | 0.69 | 27.40 |
| 360 | Teshale×15428 | 79.00 | 0.00 | 8.80 | 18.60 | 120.00 | 2.00 | 45.20 | 21.35 | 0.81 | 36.85 |
| 361 | Teshale×15428 | 81.00 | 0.30 | 10.60 | 5.00 | 118.50 | 3.00 | 100.88 | 18.34 | 0.76 | 76.46 |
| 362 | Teshale×15428 | 84.00 | 0.10 | 9.20 | 6.20 | 117.00 | 3.00 | 66.99 | 18.02 | 0.79 | 52.80 |
| 363 | Teshale×15428 | 93.00 | 1.00 | 8.80 | 15.80 | 121.50 | 2.50 | 55.85 | 18.57 | 0.81 | 45.12 |
| 364 | Teshale×15428 | 74.00 | 0.30 | 9.10 | 13.60 | 117.00 | 2.50 | 57.55 | 20.12 | 0.76 | 43.24 |
| 365 | Teshale×15428 | 85.00 | 0.67 | 9.33 | 9.00 | 123.00 | 4.00 | 74.00 | 19.83 | 0.77 | 58.56 |
| 366 | Teshale×15428 | 79.50 | 1.21 | 9.50 | 6.79 | 120.50 | 2.00 | 74.07 | 17.97 | 0.72 | 52.98 |
| 367 | Teshale×15428 | 82.00 | 0.00 | 8.20 | 12.00 | 115.00 | 4.00 | 64.10 | 17.79 | 0.71 | 47.11 |
| 368 | Teshale×15428 | 89.00 | 0.90 | 10.00 | 11.20 | 127.00 | 2.50 | 78.67 | 19.95 | 0.79 | 61.85 |
| 369 | Teshale×15428 | 93.50 | 0.00 | 11.25 | 1.25 | 127.50 | 3.50 | 53.67 | 20.43 | 0.69 | 36.38 |
| 370 | Teshale×15428 | 83.50 | 1.35 | 11.40 | 13.65 | 118.50 | 3.50 | 73.80 | 20.40 | 0.78 | 56.23 |
| 371 | Teshale×15428 | 85.50 | 0.90 | 9.50 | 8.20 | 123.50 | 3.50 | 57.30 | 19.29 | 0.76 | 43.51 |
| 372 | Teshale×15428 | 80.00 | 0.17 | 8.67 | 13.87 | 121.00 | 3.00 | 87.10 | 25.64 | 0.75 | 64.98 |
| 373 | Teshale×15428 | 84.00 | 0.20 | 9.80 | 9.40 | 118.00 | 4.00 | 51.60 | 16.15 | 0.74 | 37.65 |
| 374 | Teshale×15428 | 90.00 | 0.20 | 9.18 | 8.25 | 119.50 | 2.50 | 76.51 | 19.84 | 0.73 | 55.20 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 375 | Teshale×15428 | 88.00 | 0.50 | 9.00 | 2.50 | 124.00 | 2.00 | 73.75 | 20.97 | 0.84 | 61.21 |
| 376 | Teshale×15428 | 84.00 | 0.90 | 10.30 | 1.70 | 125.00 | 2.50 | 53.23 | 18.83 | 0.71 | 38.45 |
| 377 | Teshale×15428 | 86.50 | 1.70 | 10.30 | 7.60 | 128.00 | 1.50 | 75.05 | 20.51 | 0.72 | 54.09 |
| 378 | Teshale×15428 | 95.00 | 1.00 | 10.00 | 3.00 | 129.00 | 1.00 | 85.20 | 15.35 | 0.80 | 66.91 |
| 379 | Teshale×15428 | 84.50 | 1.34 | 8.67 | 10.67 | 124.50 | 2.00 | 91.13 | 20.66 | 0.78 | 72.54 |
| 380 | Teshale×15428 | 91.00 | 0.00 | 6.75 | 16.00 | 125.00 | 2.00 | 38.00 | 20.36 | 0.96 | 36.25 |
| 381 | Teshale×15428 | 86.00 | 0.90 | 8.80 | 5.53 | 119.50 | 3.00 | 39.74 | 15.57 | 0.72 | 28.88 |
| 382 | Teshale×15428 | 78.50 | 0.10 | 8.50 | 13.70 | 121.50 | 2.00 | 77.44 | 21.12 | 0.80 | 61.70 |
| 383 | Teshale×15428 | 78.00 | 1.00 | 10.33 | 7.00 | 119.00 | 2.00 | 139.33 | 26.32 | 0.82 | 113.22 |
| 384 | Teshale×15428 | 93.50 | 1.00 | 11.60 | 5.90 | 130.50 | 3.00 | 90.13 | 20.34 | 0.80 | 73.24 |
| 385 | Teshale×15428 | 85.50 | 0.50 | 9.42 | 10.17 | 123.50 | 3.00 | 107.84 | 25.63 | 0.80 | 85.90 |
| 386 | Teshale×15428 | 67.00 | 0.60 | 8.80 | 13.60 | 113.00 | 3.00 | 56.30 | 21.15 | 0.78 | 42.99 |
| 387 | Teshale×15428 | 76.50 | 0.40 | 9.10 | 16.60 | 122.00 | 3.50 | 67.32 | 21.60 | 0.81 | 52.75 |
| 388 | Teshale×15428 | 79.50 | 0.20 | 10.60 | 12.60 | 118.50 | 3.00 | 70.40 | 22.37 | 0.81 | 55.95 |
| 389 | Teshale×15428 | 87.00 | 0.20 | 10.80 | 7.20 | 119.00 | 3.00 | 92.20 | 18.56 | 0.77 | 70.50 |
| 390 | Teshale×15428 | 87.00 | 0.10 | 7.90 | 22.60 | 121.00 | 3.50 | 34.20 | 16.69 | 0.90 | 31.54 |
| 391 | Teshale×15428 | 87.00 | 1.24 | 8.57 | 14.80 | 123.50 | 3.00 | 50.47 | 16.63 | 0.77 | 38.61 |
| 392 | Teshale×15428 | 84.50 | 0.00 | 9.60 | 5.50 | 117.50 | 3.00 | 75.57 | 16.00 | 0.76 | 56.61 |
| 393 | Teshale×15428 | 83.50 | 0.17 | 9.77 | 2.17 | 118.50 | 4.00 | 67.25 | 17.96 | 0.69 | 50.58 |
| 394 | Teshale×15428 | 87.50 | 0.00 | 9.05 | 7.30 | 123.00 | 2.50 | 50.45 | 18.16 | 0.67 | 34.09 |
| 395 | Teshale×15428 | 86.00 | 0.20 | 10.10 | 8.50 | 125.00 | 2.50 | 75.60 | 26.88 | 0.82 | 60.69 |
| 396 | Teshale×15428 | 78.50 | 0.65 | 10.05 | 19.00 | 121.00 | 3.50 | 78.68 | 22.86 | 0.79 | 62.98 |
| 397 | Teshale×15428 | 78.00 | 0.00 | 8.00 | 9.00 | 127.00 | 2.00 | 54.50 | 27.67 | 0.68 | 36.83 |
| 398 | Teshale×15428 | 86.50 | 0.00 | 9.05 | 17.85 | 124.50 | 2.50 | 59.67 | 20.99 | 0.79 | 46.36 |
| 399 | Teshale×15428 | 100.50 | 0.00 | 11.13 | 0.00 | 135.00 | 1.50 | 61.07 | 11.43 | 0.29 | 14.16 |
| 400 | Teshale×15428 | 90.50 | 1.00 | 10.75 | 1.25 | 125.00 | 3.00 | 67.92 | 15.96 | 0.69 | 47.23 |
| 401 | Teshale×15428 | 88.00 | 1.00 | 6.00 | 11.00 | 119.00 | 1.00 | 36.00 | 24.00 | 0.97 | 35.60 |
| 402 | Teshale×15428 | 78.50 | 0.40 | 10.00 | 11.00 | 119.50 | 3.00 | 78.98 | 21.07 | 0.80 | 61.03 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 403 | Teshale×15428 | 82.50 | 0.00 | 10.00 | 7.05 | 122.00 | 3.00 | 79.13 | 19.58 | 0.76 | 59.77 |
| 404 | Teshale×15428 | 88.00 | 0.00 | 9.20 | 10.40 | 127.00 | 3.00 | 44.10 | 15.92 | 0.78 | 34.90 |
| 405 | Teshale×15428 | 80.00 | 0.50 | 10.40 | 2.80 | 124.50 | 2.50 | 83.18 | 18.85 | 0.74 | 62.41 |
| 406 | Teshale×15428 | 88.50 | 0.20 | 9.10 | 14.10 | 124.00 | 2.00 | 63.95 | 22.61 | 0.80 | 51.28 |
| 407 | Teshale×15428 | 80.00 | 0.00 | 9.00 | 10.00 | 120.00 | 2.00 | 78.33 | 25.11 | 0.80 | 62.45 |
| 408 | Teshale×15428 | 84.50 | 0.17 | 9.84 | 7.74 | 120.00 | 2.00 | 69.09 | 17.49 | 0.79 | 54.64 |
| 409 | Teshale×15428 | 91.00 | 0.10 | 10.40 | 3.40 | 126.50 | 3.50 | 54.35 | 16.74 | 0.73 | 39.91 |
| 410 | Teshale×15428 | 85.50 | 0.00 | 8.90 | 12.20 | 121.00 | 2.00 | 72.60 | 21.26 | 0.80 | 57.48 |
| 411 | Teshale×15428 | 87.00 | 0.67 | 8.50 | 15.84 | 122.50 | 2.00 | 63.53 | 23.34 | 0.77 | 47.20 |
| 412 | Teshale×15428 | 75.50 | 0.40 | 10.20 | 15.90 | 115.00 | 4.00 | 73.18 | 20.39 | 0.81 | 58.58 |
| 413 | Teshale×15428 | 68.00 | 0.00 | 8.80 | 12.60 | 113.00 | 4.00 | 76.40 | 24.39 | 0.81 | 62.29 |
| 414 | Teshale×15428 | 77.00 | 0.70 | 8.60 | 28.40 | 120.00 | 3.00 | 45.55 | 24.52 | 0.76 | 34.58 |
| 415 | Teshale×15428 | 80.50 | 0.20 | 9.50 | 18.00 | 121.50 | 2.00 | 37.20 | 22.11 | 0.75 | 28.25 |
| 417 | Teshale×15428 | 79.50 | 0.00 | 9.50 | 13.60 | 117.50 | 3.50 | 77.45 | 21.25 | 0.79 | 60.74 |
| 418 | Teshale×15428 | 82.50 | 0.38 | 10.48 | 8.90 | 117.00 | 3.50 | 79.80 | 20.42 | 0.77 | 62.14 |
| 419 | Teshale×15428 | 81.00 | 0.30 | 9.70 | 16.20 | 118.50 | 3.50 | 75.00 | 22.06 | 0.78 | 58.51 |
| 420 | Teshale×15428 | 82.50 | 0.27 | 9.54 | 14.77 | 122.50 | 2.50 | 95.62 | 23.86 | 0.80 | 75.60 |
| 421 | Teshale×15428 | 89.50 | 0.20 | 8.50 | 8.68 | 123.50 | 1.50 | 97.05 | 19.39 | 0.77 | 73.19 |
| 422 | Teshale×15428 | 91.00 | 0.20 | 10.80 | 9.60 | 129.00 | 2.00 | 91.70 | 18.96 | 0.77 | 71.77 |
| 424 | Teshale×15428 | 89.00 | 0.80 | 11.50 | 15.40 | 125.00 | 1.50 | 60.25 | 20.53 | 0.75 | 46.67 |
| 425 | Teshale×15428 | 85.50 | 0.50 | 11.80 | 4.00 | 123.00 | 3.00 | 90.42 | 20.43 | 0.76 | 68.32 |
| 426 | Teshale×15428 | 79.00 | 1.20 | 10.65 | 15.50 | 117.50 | 3.00 | 88.62 | 24.81 | 0.80 | 70.46 |
| 427 | Teshale×15428 | 80.00 | 0.10 | 9.20 | 16.60 | 117.00 | 3.00 | 64.15 | 22.54 | 0.80 | 50.45 |
| 428 | Teshale×15428 | 88.50 | 0.00 | 10.96 | 4.59 | 118.50 | 3.00 | 67.99 | 15.92 | 0.72 | 49.48 |
| 429 | Teshale×15428 | 83.00 | 0.40 | 10.10 | 10.10 | 118.50 | 2.50 | 70.48 | 21.18 | 0.77 | 54.08 |
| 430 | Teshale×15428 | 74.50 | 0.60 | 9.00 | 6.90 | 117.50 | 3.00 | 55.15 | 22.33 | 0.77 | 43.10 |
| 431 | Teshale×15428 | 89.50 | 0.80 | 10.50 | 4.80 | 126.00 | 2.50 | 57.30 | 16.70 | 0.76 | 42.93 |
| 432 | Teshale×15428 | 98.00 | 0.20 | 11.20 | 2.80 | 129.00 | 4.00 | 62.10 | 17.39 | 0.72 | 45.62 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 433 | Teshale×15428 | 83.50 | 0.35 | 9.68 | 4.75 | 121.00 | 3.00 | 82.82 | 15.63 | 0.73 | 59.84 |
| 434 | Teshale×15428 | 83.50 | 0.10 | 10.48 | 8.55 | 125.50 | 2.00 | 82.00 | 22.72 | 0.71 | 59.66 |
| 435 | Teshale×15428 | 78.00 | 1.20 | 10.00 | 13.40 | 120.00 | 4.00 | 90.20 | 24.26 | 0.78 | 71.36 |
| 436 | Teshale×15428 | 85.50 | 0.00 | 9.40 | 4.80 | 123.00 | 3.00 | 61.80 | 17.90 | 0.73 | 44.99 |
| 438 | Teshale×15428 | 90.00 | 0.13 | 10.25 | 7.25 | 123.00 | 2.50 | 58.69 | 17.33 | 0.66 | 42.09 |
| 439 | Teshale×15428 | 83.50 | 0.25 | 9.50 | 1.00 | 123.00 | 2.50 | 50.00 | 18.10 | 0.60 | 31.91 |
| 441 | Teshale×15428 | 86.00 | 0.20 | 9.80 | 7.00 | 125.00 | 2.00 | 62.60 | 21.28 | 0.82 | 50.67 |
| 442 | Teshale×15428 | 81.50 | 0.20 | 9.00 | 12.78 | 119.00 | 3.00 | 56.50 | 20.65 | 0.76 | 42.49 |
| 443 | Teshale×15428 | 82.50 | 0.50 | 9.04 | 7.60 | 125.00 | 2.50 | 81.94 | 23.69 | 0.80 | 65.57 |
| 444 | Teshale×15428 | 78.00 | 0.20 | 10.00 | 10.00 | 115.00 | 1.00 | 63.00 | 22.20 | 0.50 | 81.06 |
| 445 | Teshale×15428 | 82.00 | 0.10 | 8.00 | 12.20 | 120.50 | 3.50 | 40.95 | 18.58 | 0.68 | 27.74 |
| 446 | Teshale×15428 | 87.00 | 1.35 | 8.45 | 12.00 | 127.00 | 1.50 | 83.17 | 23.76 | 0.79 | 66.31 |
| 447 | Teshale×15428 | 85.50 | 0.00 | 10.30 | 7.38 | 123.00 | 2.50 | 71.25 | 23.36 | 0.76 | 54.00 |
| 448 | Teshale×15428 | 82.50 | 0.50 | 8.40 | 10.20 | 118.50 | 3.00 | 68.89 | 17.19 | 0.78 | 53.99 |
| 449 | Teshale×15428 | 75.50 | 0.25 | 9.28 | 6.70 | 122.50 | 2.50 | 90.65 | 26.97 | 0.80 | 72.67 |
| 450 | Teshale×15428 | 82.00 | 0.50 | 11.00 | 5.34 | 122.00 | 3.00 | 92.05 | 21.45 | 0.80 | 74.53 |
| 451 | Teshale×15428 | 82.50 | 0.94 | 8.47 | 11.47 | 123.50 | 2.00 | 60.45 | 21.60 | 0.80 | 48.45 |
| 452 | Teshale×15428 | 87.00 | 0.73 | 9.40 | 9.00 | 119.50 | 3.00 | 58.82 | 15.56 | 0.78 | 45.44 |
| 453 | Teshale×15428 | 82.50 | 0.10 | 10.30 | 6.70 | 118.50 | 4.00 | 80.10 | 15.26 | 0.72 | 56.69 |
| 454 | Teshale×15428 | 88.50 | 0.25 | 8.93 | 1.80 | 122.00 | 3.00 | 49.35 | 14.54 | 0.78 | 38.61 |
| 455 | Teshale×15428 | 83.50 | 0.50 | 9.34 | 13.25 | 118.50 | 3.50 | 55.42 | 18.64 | 0.81 | 44.64 |
| 456 | Teshale×15428 | 86.00 | 1.25 | 10.63 | 3.25 | 125.00 | 3.00 | 74.25 | 19.84 | 0.77 | 57.06 |
| 457 | Teshale×15428 | 89.50 | 0.25 | 9.68 | 7.55 | 119.50 | 3.00 | 78.55 | 18.61 | 0.75 | 59.48 |
| 458 | Teshale×15428 | 91.50 | 0.34 | 12.17 | 2.83 | 128.50 | 2.50 | 83.13 | 21.58 | 0.76 | 62.94 |
| 459 | Teshale×15428 | 88.00 | 0.00 | 11.00 | 10.67 | 129.00 | 1.00 | 85.00 | 21.52 | 0.81 | 69.14 |
| 460 | Teshale×15428 | 86.50 | 0.38 | 10.38 | 7.88 | 131.50 | 2.50 | 100.70 | 20.18 | 0.72 | 74.39 |
| 461 | Teshale×15428 | 82.00 | 0.10 | 7.77 | 14.97 | 120.50 | 3.00 | 60.97 | 22.82 | 0.84 | 51.15 |
| 462 | Teshale×15428 | 95.00 | 0.34 | 9.87 | 6.90 | 131.00 | 2.00 | 51.79 | 19.58 | 0.73 | 37.09 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 463 | Teshale×15428 | 81.00 | 0.00 | 8.50 | 8.50 | 120.00 | 4.00 | 83.00 | 23.37 | 0.74 | 60.66 |
| 464 | Teshale×15428 | 81.00 | 0.00 | 8.60 | 24.90 | 118.50 | 3.50 | 46.35 | 21.79 | 0.77 | 35.95 |
| 465 | Teshale×15428 | 85.00 | 0.67 | 10.00 | 15.00 | 120.00 | 2.00 | 77.33 | 23.28 | 0.78 | 60.54 |
| 466 | Teshale×15428 | 93.50 | 0.13 | 9.13 | 3.70 | 126.00 | 3.00 | 73.39 | 17.98 | 0.66 | 49.78 |
| 467 | Teshale×15428 | 79.50 | 0.90 | 9.35 | 14.30 | 123.50 | 3.00 | 57.88 | 21.92 | 0.76 | 43.37 |
| 468 | Teshale×15428 | 86.50 | 0.38 | 7.13 | 11.23 | 123.00 | 2.00 | 28.32 | 20.57 | 0.78 | 22.27 |
| 469 | Teshale×15428 | 86.50 | 0.20 | 9.70 | 3.60 | 118.50 | 3.00 | 82.79 | 17.99 | 0.75 | 63.23 |
| 470 | Teshale×15428 | 78.50 | 0.30 | 10.57 | 10.00 | 117.00 | 3.00 | 63.30 | 24.61 | 0.79 | 49.30 |
| 471 | Teshale×15428 | 91.50 | 0.67 | 9.84 | 1.25 | 126.00 | 2.50 | 63.90 | 24.59 | 0.73 | 45.19 |
| 472 | Teshale×15428 | 68.50 | 0.80 | 8.80 | 7.70 | 121.50 | 3.00 | 90.90 | 25.67 | 0.83 | 75.17 |
| 473 | Teshale×15428 | 83.50 | 0.00 | 8.75 | 4.92 | 118.50 | 3.50 | 75.57 | 18.09 | 0.72 | 55.27 |
| 474 | Teshale×15428 | 86.50 | 1.67 | 8.67 | 5.92 | 123.00 | 1.50 | 54.96 | 21.61 | 0.89 | 47.27 |
| 475 | Teshale×15428 | 84.00 | 1.00 | 8.00 | 8.00 | 119.00 | 1.00 | 95.00 | 22.81 | 0.94 | 87.88 |
| 476 | Teshale×15428 | 88.50 | 0.75 | 8.75 | 9.75 | 121.50 | 3.50 | 41.00 | 17.33 | 0.73 | 31.70 |
| 477 | Teshale×15428 | 77.50 | 0.90 | 7.20 | 19.25 | 118.50 | 1.50 | 35.83 | 25.26 | 0.66 | 24.78 |
| 478 | Teshale×15428 | 83.00 | 1.25 | 8.50 | 13.00 | 125.00 | 2.00 | 77.13 | 24.69 | 0.78 | 58.59 |
| 479 | Teshale×15428 | 81.00 | 0.00 | 10.20 | 18.20 | 119.00 | 2.00 | 84.10 | 25.00 | 0.78 | 64.72 |
| 480 | Teshale×15428 | 88.00 | 1.00 | 10.40 | 17.10 | 125.00 | 1.50 | 56.63 | 20.29 | 0.76 | 43.25 |
| 481 | Teshale×15428 | 92.00 | 0.25 | 11.42 | 2.50 | 125.00 | 2.50 | 76.98 | 22.96 | 0.72 | 56.87 |
| 482 | Teshale×15428 | 80.00 | 0.00 | 8.50 | 13.00 | 119.00 | 1.00 | 57.13 | 24.23 | 0.82 | 46.80 |
| 483 | Teshale×15428 | 82.00 | 0.00 | 7.59 | 19.75 | 127.00 | 2.00 | 49.25 | 20.99 | 0.63 | 23.06 |
| 484 | Teshale×15428 | 86.00 | 0.00 | 8.60 | 9.80 | 123.00 | 2.00 | 47.00 | 20.61 | 0.78 | 37.18 |
| 485 | Teshale×15428 | 79.50 | 0.20 | 10.80 | 8.90 | 118.50 | 3.50 | 90.75 | 23.15 | 0.77 | 69.58 |
| 486 | Teshale×15428 | 76.50 | 0.10 | 8.60 | 7.30 | 117.00 | 4.00 | 59.65 | 19.38 | 0.70 | 43.96 |
| 487 | Teshale×15428 | 78.00 | 0.90 | 9.90 | 10.40 | 118.50 | 3.00 | 65.40 | 21.91 | 0.77 | 49.53 |
| 488 | Teshale×15428 | 82.50 | 0.50 | 8.97 | 9.20 | 123.50 | 3.00 | 86.63 | 21.15 | 0.81 | 69.08 |
| 489 | Teshale×15428 | 86.00 | 0.35 | 10.74 | 11.50 | 125.00 | 3.00 | 71.18 | 19.05 | 0.78 | 55.86 |
| 490 | Teshale×15428 | 77.50 | 0.40 | 9.80 | 21.10 | 118.50 | 3.00 | 73.65 | 24.68 | 0.87 | 63.15 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 491 | Teshale×15428 | 85.00 | 0.44 | 8.90 | 15.17 | 127.00 | 2.50 | 51.23 | 21.21 | 0.70 | 36.21 |
| 492 | Teshale×15428 | 91.00 | 1.10 | 11.00 | 2.40 | 123.50 | 2.50 | 68.95 | 20.40 | 0.66 | 52.25 |
| 494 | Teshale×15428 | 88.00 | 0.00 | 10.00 | 3.00 | 119.00 | 3.00 | 153.00 | 19.89 | 0.80 | 122.30 |
| 495 | Teshale×15428 | 84.50 | 0.13 | 8.98 | 5.65 | 118.50 | 3.00 | 57.33 | 18.96 | 0.78 | 44.77 |
| 496 | Teshale×15428 | 84.00 | 0.00 | 8.00 | 18.60 | 123.00 | 4.00 | 46.40 | 14.07 | 0.74 | 33.89 |
| 497 | Teshale×15428 | 88.00 | 0.50 | 8.47 | 15.50 | 126.50 | 1.50 | 75.38 | 23.32 | 0.77 | 59.46 |
| 498 | Teshale×15428 | 81.00 | 0.80 | 10.80 | 3.00 | 118.00 | 3.00 | 123.40 | 22.30 | 0.81 | 101.37 |
| 499 | Teshale×15428 | 88.00 | 2.00 | 9.50 | 16.17 | 126.00 | 1.00 | 129.67 | 24.78 | 0.81 | 103.08 |
| 500 | Teshale×15428 | 90.00 | 0.40 | 9.40 | 2.80 | 129.00 | 3.00 | 60.20 | 15.88 | 0.72 | 42.80 |
| 502 | Teshale×15428 | 71.00 | 1.75 | 8.75 | 7.75 | 126.00 | 1.00 | 70.00 | 26.51 | 0.73 | 52.66 |
| 503 | Teshale×15428 | 77.50 | 0.25 | 8.09 | 12.84 | 121.50 | 2.50 | 44.88 | 26.10 | 0.81 | 35.74 |
| 504 | Teshale×15428 | 77.00 | 0.70 | 9.70 | 18.90 | 115.00 | 2.00 | 63.25 | 21.18 | 0.81 | 51.44 |
| 505 | Teshale×15428 | 80.50 | 0.00 | 8.44 | 4.64 | 124.00 | 3.00 | 82.00 | 20.26 | 0.73 | 60.38 |
| 506 | Teshale×15428 | 74.00 | 0.60 | 7.93 | 13.40 | 119.50 | 2.50 | 78.68 | 21.76 | 0.79 | 62.10 |
| 508 | Teshale×15428 | 72.00 | 1.08 | 8.30 | 20.30 | 117.50 | 4.50 | 82.55 | 22.06 | 0.81 | 67.94 |
| 509 | Teshale×15428 | 83.00 | 0.67 | 9.34 | 13.10 | 126.00 | 2.00 | 89.79 | 27.55 | 0.81 | 73.17 |
| 510 | Teshale×15428 | 73.00 | 0.00 | 9.80 | 3.60 | 113.00 | 2.00 | 110.00 | 22.45 | 0.74 | 81.19 |
| 511 | Teshale×15428 | 84.00 | 0.00 | 9.50 | 11.00 | 120.00 | 3.00 | 57.50 | 17.68 | 0.60 | 35.05 |
| 512 | Teshale×15428 | 88.50 | 0.70 | 9.60 | 3.60 | 126.00 | 3.00 | 95.88 | 25.93 | 0.79 | 75.91 |
| 513 | Teshale×15428 | 83.00 | 0.23 | 10.05 | 8.37 | 124.00 | 3.50 | 67.19 | 18.43 | 0.77 | 52.51 |
| 514 | Teshale×15428 | 85.00 | 0.80 | 10.40 | 6.20 | 123.00 | 3.50 | 91.00 | 17.95 | 0.76 | 69.88 |
| 515 | Teshale×15428 | 86.00 | 1.00 | 9.25 | 17.00 | 124.00 | 2.00 | 48.75 | 20.83 | 0.81 | 40.04 |
| 516 | Teshale×15428 | 84.50 | 0.63 | 10.13 | 3.50 | 121.50 | 2.50 | 81.63 | 20.13 | 0.77 | 62.47 |
| 517 | Teshale×15428 | 78.00 | 0.20 | 9.00 | 19.20 | 116.00 | 3.00 | 50.15 | 24.46 | 0.83 | 40.38 |
| 518 | Teshale×15428 | 80.00 | 0.13 | 8.75 | 17.43 | 121.50 | 2.50 | 52.88 | 18.45 | 0.78 | 41.52 |
| 519 | Teshale×22325 | 85.00 | 0.00 | 9.00 | 5.25 | 119.00 | 2.00 | 56.50 | 19.89 | 0.81 | 45.28 |
| 520 | Teshale×22325 | 86.00 | 1.00 | 11.00 | 12.00 | 125.00 | 3.00 | 47.67 | 19.22 | 0.75 | 36.28 |
| 521 | Teshale×22325 | 93.00 | 0.40 | 9.20 | 15.70 | 128.50 | 2.00 | 54.40 | 20.74 | 0.64 | 35.15 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 522 | Teshale×22325 | 77.50 | 1.00 | 10.60 | 10.40 | 118.50 | 3.50 | 80.05 | 23.39 | 0.80 | 64.67 |
| 523 | Teshale×22325 | 86.50 | 1.85 | 10.00 | 1.95 | 127.50 | 3.00 | 66.93 | 20.26 | 0.69 | 44.96 |
| 524 | Teshale×22325 | 88.00 | 0.90 | 10.00 | 8.60 | 127.00 | 2.50 | 71.75 | 15.17 | 0.69 | 49.78 |
| 525 | Teshale×22325 | 85.50 | 2.50 | 8.38 | 7.75 | 126.00 | 2.00 | 70.90 | 19.90 | 0.61 | 43.74 |
| 527 | Teshale×22325 | 92.00 | 3.00 | 10.00 | 12.60 | 130.00 | 2.00 | 39.25 | 11.09 | 0.64 | 24.54 |
| 528 | Teshale×22325 | 88.00 | 0.10 | 11.90 | 5.30 | 127.50 | 3.00 | 78.00 | 20.52 | 0.74 | 58.80 |
| 529 | Teshale×22325 | 87.00 | 0.50 | 10.00 | 2.84 | 124.00 | 1.50 | 99.38 | 22.93 | 0.80 | 78.94 |
| 530 | Teshale×22325 | 85.00 | 0.00 | 8.40 | 14.50 | 127.00 | 3.00 | 62.30 | 25.31 | 0.81 | 51.51 |
| 531 | Teshale×22325 | 95.00 | 0.55 | 12.13 | 0.13 | 129.00 | 2.00 | 63.09 | 19.29 | 0.69 | 47.29 |
| 532 | Teshale×22325 | 79.00 | 0.75 | 10.50 | 15.75 | 121.00 | 3.50 | 66.10 | 21.20 | 0.82 | 54.43 |
| 533 | Teshale×22325 | 91.00 | 0.10 | 10.50 | 1.10 | 126.50 | 3.50 | 50.05 | 17.81 | 0.74 | 37.01 |
| 534 | Teshale×22325 | 86.00 | 0.20 | 11.40 | 4.40 | 118.00 | 4.00 | 64.10 | 18.19 | 0.74 | 48.49 |
| 535 | Teshale×22325 | 91.00 | 0.25 | 11.50 | 8.75 | 125.00 | 3.00 | 58.10 | 16.47 | 0.75 | 44.00 |
| 536 | Teshale×22325 | 80.00 | 0.90 | 10.30 | 9.50 | 121.00 | 3.00 | 67.90 | 18.79 | 0.77 | 51.71 |
| 537 | Teshale×22325 | 86.00 | 0.00 | 11.40 | 14.40 | 126.00 | 4.00 | 105.25 | 24.57 | 0.70 | 76.43 |
| 538 | Teshale×22325 | 92.00 | 0.00 | 9.60 | 2.60 | 129.00 | 3.00 | 33.70 | 12.68 | 0.66 | 21.82 |
| 539 | Teshale×22325 | 88.00 | 0.50 | 9.40 | 9.80 | 127.00 | 2.50 | 63.55 | 17.53 | 0.75 | 48.03 |
| 540 | Teshale×22325 | 78.00 | 0.70 | 8.90 | 13.40 | 122.50 | 3.50 | 61.48 | 20.99 | 0.74 | 44.57 |
| 541 | Teshale×22325 | 89.00 | 0.00 | 9.95 | 1.70 | 126.00 | 2.50 | 44.43 | 16.73 | 0.64 | 28.35 |
| 542 | Teshale×22325 | 88.00 | 0.63 | 11.75 | 3.60 | 118.00 | 3.50 | 58.82 | 14.89 | 0.71 | 41.50 |
| 543 | Teshale×22325 | 78.00 | 1.40 | 11.40 | 14.40 | 115.00 | 3.00 | 38.70 | 21.05 | 0.69 | 27.18 |
| 544 | Teshale×22325 | 80.50 | 1.20 | 10.60 | 3.14 | 121.00 | 3.00 | 76.67 | 21.13 | 0.75 | 56.97 |
| 545 | Teshale×22325 | 87.50 | 0.50 | 11.50 | 3.67 | 128.00 | 2.50 | 113.50 | 21.86 | 0.79 | 90.31 |
| 546 | Teshale×22325 | 84.50 | 0.50 | 9.84 | 11.17 | 127.50 | 3.50 | 75.74 | 20.10 | 0.72 | 55.32 |
| 547 | Teshale×22325 | 95.50 | 0.00 | 10.87 | 3.77 | 126.50 | 2.50 | 42.60 | 14.53 | 0.70 | 30.13 |
| 548 | Teshale×22325 | 80.00 | 0.00 | 7.74 | 21.40 | 118.50 | 2.50 | 43.65 | 22.27 | 0.83 | 36.55 |
| 549 | Teshale×22325 | 82.00 | 0.40 | 10.00 | 6.25 | 126.00 | 1.00 | 89.50 | 21.58 | 0.80 | 70.52 |
| 551 | Teshale×22325 | 83.50 | 0.50 | 11.20 | 8.40 | 119.50 | 3.00 | 72.27 | 18.64 | 0.77 | 56.18 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 552 | Teshale×22325 | 86.00 | 0.20 | 10.20 | 6.20 | 125.00 | 4.00 | 69.10 | 18.08 | 0.03 | 1.87 |
| 553 | Teshale×22325 | 89.50 | 2.10 | 9.10 | 19.50 | 132.50 | 2.00 | 50.82 | 18.82 | 0.78 | 38.45 |
| 554 | Teshale×22325 | 78.00 | 1.40 | 9.60 | 11.60 | 123.00 | 4.00 | 70.40 | 25.59 | 0.76 | 52.56 |
| 555 | Teshale×22325 | 87.00 | 0.55 | 9.85 | 11.80 | 118.50 | 2.00 | 114.75 | 25.73 | 0.76 | 87.87 |
| 556 | Teshale×22325 | 89.50 | 0.00 | 10.67 | 1.84 | 126.00 | 1.50 | 84.29 | 17.10 | 0.78 | 66.45 |
| 557 | Teshale×22325 | 79.50 | 0.90 | 10.10 | 13.00 | 123.00 | 2.00 | 170.60 | 18.55 | 0.71 | 114.92 |
| 558 | Teshale×22325 | 86.00 | 0.10 | 9.10 | 4.30 | 122.50 | 4.00 | 55.65 | 18.34 | 0.66 | 38.60 |
| 559 | Teshale×22325 | 79.00 | 0.40 | 9.20 | 11.50 | 121.00 | 2.50 | 50.40 | 20.81 | 0.68 | 36.56 |
| 561 | Teshale×22325 | 88.50 | 0.70 | 10.85 | 7.35 | 131.50 | 2.50 | 58.65 | 18.80 | 0.75 | 43.86 |
| 562 | Teshale×22325 | 84.00 | 0.00 | 9.00 | 15.50 | 123.00 | 4.00 | 68.38 | 21.05 | 0.73 | 50.86 |
| 563 | Teshale×22325 | 85.50 | 0.60 | 10.10 | 7.70 | 124.00 | 3.50 | 69.15 | 20.22 | 0.76 | 51.86 |
| 564 | Teshale×22325 | 82.50 | 0.00 | 9.00 | 8.20 | 123.50 | 2.50 | 46.05 | 19.80 | 0.74 | 34.33 |
| 565 | Teshale×22325 | 86.50 | 0.00 | 11.20 | 8.20 | 127.00 | 1.50 | 116.50 | 27.26 | 0.85 | 98.08 |
| 566 | Teshale×22325 | 80.50 | 0.25 | 10.15 | 14.10 | 121.00 | 3.00 | 66.99 | 25.03 | 0.72 | 48.47 |
| 567 | Teshale×22325 | 87.00 | 0.50 | 10.00 | 4.00 | 125.00 | 1.00 | 75.88 | 24.74 | 0.75 | 55.84 |
| 568 | Teshale×22325 | 84.50 | 0.00 | 9.80 | 9.80 | 122.50 | 2.50 | 56.50 | 20.73 | 0.73 | 42.13 |
| 569 | Teshale×22325 | 81.00 | 0.00 | 6.80 | 23.00 | 129.00 | 3.00 | 41.80 | 21.09 | 0.67 | 28.80 |
| 570 | Teshale×22325 | 84.00 | 0.00 | 8.10 | 9.70 | 121.00 | 4.00 | 53.30 | 16.11 | 0.81 | 41.77 |
| 571 | Teshale×22325 | 84.50 | 0.10 | 10.10 | 7.50 | 122.50 | 1.50 | 82.65 | 25.58 | 0.78 | 65.20 |
| 572 | Teshale×22325 | 91.00 | 0.00 | 8.25 | 11.50 | 124.00 | 3.00 | 50.00 | 17.10 | 0.72 | 36.21 |
| 573 | Teshale×22325 | 78.00 | 1.25 | 9.25 | 5.75 | 119.00 | 4.00 | 76.10 | 22.91 | 0.84 | 62.80 |
| 574 | Teshale×22325 | 87.00 | 1.00 | 9.13 | 4.90 | 128.50 | 3.00 | 46.30 | 19.79 | 0.75 | 35.05 |
| 575 | Teshale×22325 | 79.50 | 0.40 | 9.30 | 12.60 | 124.00 | 2.50 | 56.65 | 26.31 | 0.80 | 45.86 |
| 576 | Teshale×22325 | 105.00 | 2.00 | 10.00 | 0.00 | 136.00 | 3.00 | 31.00 | 17.70 | 0.65 | 20.34 |
| 577 | Teshale×22325 | 91.00 | 3.00 | 9.00 | 9.00 | 125.00 | 4.00 | 73.00 | 14.81 | 0.73 | 52.33 |
| 578 | Teshale×22325 | 79.50 | 2.30 | 10.08 | 11.60 | 117.50 | 4.00 | 69.90 | 20.00 | 0.75 | 53.88 |
| 579 | Teshale×22325 | 78.00 | 1.00 | 8.54 | 12.17 | 122.00 | 4.00 | 42.70 | 18.73 | 0.71 | 30.07 |
| 580 | Teshale×22325 | 85.50 | 0.90 | 10.54 | 5.34 | 122.50 | 2.50 | 74.99 | 25.19 | 0.76 | 57.50 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 581 | Teshale×22325 | 88.50 | 1.30 | 11.00 | 7.50 | 122.00 | 2.50 | 61.84 | 20.21 | 0.70 | 43.70 |
| 582 | Teshale×22325 | 80.00 | 2.50 | 10.00 | 14.38 | 119.50 | 3.00 | 63.50 | 23.77 | 0.76 | 50.02 |
| 583 | Teshale×22325 | 76.00 | 1.00 | 10.00 | 10.00 | 120.00 | 3.00 | 90.50 | 29.20 | 0.85 | 76.47 |
| 584 | Teshale×22325 | 87.00 | 0.90 | 9.40 | 9.40 | 124.00 | 2.00 | 60.15 | 18.98 | 0.77 | 45.86 |
| 585 | Teshale×22325 | 77.00 | 0.90 | 11.00 | 10.80 | 119.50 | 3.50 | 98.79 | 30.50 | 0.81 | 79.73 |
| 586 | Teshale×22325 | 85.00 | 0.60 | 10.00 | 10.85 | 122.50 | 3.00 | 62.19 | 21.57 | 0.74 | 46.49 |
| 587 | Teshale×22325 | 84.50 | 0.40 | 11.50 | 3.30 | 125.50 | 3.50 | 61.05 | 19.01 | 0.66 | 41.09 |
| 588 | Teshale×22325 | 86.00 | 1.38 | 13.13 | 4.00 | 124.00 | 3.00 | 67.75 | 26.07 | 0.62 | 41.15 |
| 589 | Teshale×22325 | 86.00 | 0.00 | 12.40 | 0.80 | 117.00 | 4.00 | 73.70 | 18.08 | 0.73 | 54.97 |
| 590 | Teshale×22325 | 86.00 | 0.20 | 8.80 | 8.60 | 125.00 | 3.00 | 63.00 | 12.48 | 0.50 | 21.87 |
| 591 | Teshale×22325 | 86.00 | 1.24 | 10.07 | 15.17 | 130.00 | 1.50 | 47.50 | 21.79 | 0.79 | 37.84 |
| 592 | Teshale×22325 | 80.00 | 0.25 | 9.83 | 17.58 | 118.50 | 2.00 | 75.70 | 23.06 | 0.81 | 59.63 |
| 593 | Teshale×22325 | 90.00 | 0.00 | 8.50 | 5.00 | 127.00 | 4.00 | 50.50 | 17.20 | 0.69 | 36.04 |
| 594 | Teshale×22325 | 83.50 | 0.50 | 10.90 | 13.80 | 124.00 | 2.50 | 75.93 | 25.01 | 0.82 | 63.11 |
| 596 | Teshale×22325 | 80.00 | 0.10 | 9.25 | 11.10 | 122.00 | 2.50 | 98.82 | 22.26 | 0.79 | 76.84 |
| 597 | Teshale×22325 | 79.00 | 0.10 | 8.70 | 26.20 | 118.50 | 2.00 | 72.34 | 20.53 | 0.78 | 55.54 |
| 598 | Teshale×22325 | 88.00 | 1.00 | 7.50 | 15.00 | 127.00 | 2.00 | 56.60 | 22.54 | 0.80 | 44.89 |
| 599 | Teshale×22325 | 84.00 | 0.00 | 10.00 | 10.50 | 126.00 | 1.00 | 92.00 | 24.57 | 0.79 | 71.59 |
| 600 | Teshale×22325 | 88.00 | 0.25 | 9.10 | 2.63 | 122.00 | 3.00 | 46.08 | 14.23 | 0.63 | 29.12 |
| 601 | Teshale×22325 | 84.50 | 0.67 | 9.17 | 9.67 | 123.50 | 3.00 | 71.34 | 18.08 | 0.76 | 55.21 |
| 602 | Teshale×22325 | 79.00 | 0.00 | 9.00 | 11.25 | 118.00 | 2.00 | 61.50 | 21.40 | 0.77 | 47.62 |
| 603 | Teshale×22325 | 81.00 | 1.30 | 9.90 | 12.70 | 117.00 | 3.50 | 55.79 | 19.89 | 0.75 | 42.06 |
| 604 | Teshale×22325 | 85.00 | 0.40 | 9.50 | 7.70 | 125.00 | 3.50 | 44.72 | 17.37 | 0.71 | 31.66 |
| 605 | Teshale×22325 | 88.00 | 0.55 | 8.63 | 4.88 | 128.50 | 3.00 | 79.00 | 15.87 | 0.80 | 62.61 |
| 606 | Teshale×22325 | 81.50 | 1.67 | 9.50 | 8.84 | 117.00 | 3.00 | 75.75 | 21.96 | 0.77 | 58.60 |
| 607 | Teshale×22325 | 88.50 | 1.10 | 11.14 | 4.37 | 124.00 | 2.50 | 38.30 | 17.08 | 0.59 | 22.63 |
| 608 | Teshale×22325 | 88.00 | 0.25 | 9.38 | 9.13 | 126.50 | 3.00 | 57.75 | 19.60 | 0.75 | 43.77 |
| 609 | Teshale×22325 | 82.00 | 0.70 | 11.20 | 3.80 | 126.00 | 3.00 | 81.05 | 21.66 | 0.78 | 62.65 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 610 | Teshale×22325 | 81.50 | 0.50 | 10.60 | 9.50 | 118.50 | 3.00 | 74.80 | 21.61 | 0.61 | 47.27 |
| 611 | Teshale×22325 | 90.50 | 0.75 | 10.25 | 3.50 | 130.50 | 2.50 | 57.04 | 16.24 | 0.65 | 38.45 |
| 612 | Teshale×22325 | 79.00 | 1.92 | 9.92 | 13.25 | 122.50 | 1.00 | 91.92 | 31.51 | 0.82 | 75.28 |
| 613 | Teshale×22325 | 86.00 | 0.45 | 9.85 | 8.98 | 123.00 | 3.00 | 54.35 | 18.07 | 0.74 | 40.38 |
| 614 | Teshale×22325 | 84.50 | 1.00 | 11.15 | 4.25 | 122.00 | 3.00 | 87.64 | 19.36 | 0.75 | 64.88 |
| 615 | Teshale×22325 | 79.00 | 3.00 | 12.00 | 12.00 | 125.00 | 2.00 | 53.00 | 23.85 | 0.78 | 41.07 |
| 616 | Teshale×22325 | 86.50 | 0.17 | 9.50 | 8.94 | 123.00 | 2.00 | 83.14 | 21.87 | 0.77 | 62.83 |
| 618 | Teshale×22325 | 88.00 | 1.20 | 9.77 | 6.70 | 123.50 | 3.50 | 49.13 | 19.69 | 0.72 | 35.67 |
| 619 | Teshale×22325 | 75.50 | 0.50 | 8.40 | 12.20 | 122.50 | 2.50 | 45.55 | 29.00 | 0.80 | 34.74 |
| 620 | Teshale×22325 | 88.00 | 0.40 | 10.00 | 6.00 | 120.00 | 4.00 | 57.40 | 12.80 | 0.57 | 33.32 |
| 621 | Teshale×22325 | 95.00 | 0.00 | 11.33 | 0.00 | 129.00 | 3.00 | 33.67 | 14.27 | 0.60 | 20.15 |
| 622 | Teshale×22325 | 81.00 | 0.20 | 10.60 | 10.00 | 123.00 | 2.00 | 76.30 | 20.33 | 0.78 | 60.28 |
| 623 | Teshale×22325 | 79.00 | 0.25 | 9.00 | 14.75 | 125.00 | 2.00 | 57.80 | 23.71 | 0.75 | 43.80 |
| 624 | Teshale×22325 | 80.50 | 0.30 | 9.10 | 10.50 | 121.00 | 4.00 | 61.10 | 20.92 | 0.76 | 46.64 |
| 627 | Teshale×22325 | 86.00 | 1.33 | 10.00 | 0.00 | 129.00 | 2.00 | 110.00 | 23.82 | 0.78 | 85.35 |
| 628 | Teshale×22325 | 91.00 | 3.00 | 7.50 | 0.00 | 119.00 | 3.00 | 81.17 | 14.49 | 0.71 | 59.19 |
| 629 | Teshale×22325 | 88.50 | 0.10 | 10.50 | 1.80 | 121.00 | 3.00 | 85.47 | 17.24 | 0.63 | 56.42 |
| 630 | Teshale×22325 | 91.50 | 0.20 | 12.50 | 3.20 | 124.50 | 1.50 | 61.40 | 20.50 | 0.75 | 44.91 |
| 631 | Teshale×22325 | 81.50 | 0.90 | 9.00 | 12.35 | 124.00 | 3.00 | 82.35 | 19.95 | 0.77 | 63.31 |
| 632 | Teshale×22325 | 87.00 | 0.80 | 10.60 | 12.00 | 124.50 | 3.00 | 63.65 | 28.62 | 0.78 | 50.30 |
| 633 | Teshale×22325 | 91.00 | 2.00 | 10.17 | 0.50 | 122.00 | 2.00 | 44.88 | 18.57 | 0.75 | 32.56 |
| 634 | Teshale×22325 | 92.00 | 0.50 | 11.25 | 5.92 | 125.00 | 4.00 | 56.67 | 23.11 | 0.68 | 39.45 |
| 635 | Teshale×22325 | 85.00 | 0.20 | 9.60 | 6.80 | 122.00 | 2.50 | 58.35 | 19.47 | 0.80 | 45.66 |
| 636 | Teshale×22325 | 100.00 | 0.00 | 11.00 | 0.00 | 129.00 | 3.00 | 19.25 | 9.87 | 0.42 | 8.14 |
| 638 | Teshale×22325 | 88.50 | 1.00 | 8.00 | 15.25 | 126.00 | 2.00 | 65.17 | 22.57 | 0.76 | 49.81 |
| 639 | Teshale×22325 | 95.00 | 0.00 | 13.25 | 0.00 | 129.00 | 3.00 | 39.38 | 14.26 | 0.69 | 27.56 |
| 640 | Teshale×22325 | 92.00 | 0.85 | 10.20 | 7.60 | 128.00 | 2.50 | 47.55 | 16.93 | 0.60 | 29.70 |
| 641 | Teshale×22325 | 86.00 | 0.75 | 10.75 | 2.38 | 127.50 | 1.50 | 86.75 | 25.23 | 0.78 | 66.86 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 642 | Teshale×22325 | 91.50 | 0.70 | 10.70 | 0.00 | 125.50 | 3.00 | 69.50 | 16.06 | 0.75 | 52.30 |
| 643 | Teshale×22325 | 88.00 | 0.50 | 8.75 | 3.75 | 129.00 | 1.00 | 88.75 | 27.01 | 0.81 | 71.25 |
| 644 | Teshale×22325 | 83.00 | 0.65 | 9.88 | 19.53 | 123.00 | 2.50 | 76.00 | 24.14 | 0.76 | 57.60 |
| 645 | Teshale×22325 | 78.50 | 1.84 | 8.50 | 16.60 | 127.00 | 2.50 | 38.35 | 21.19 | 0.75 | 29.02 |
| 646 | Teshale×22325 | 77.50 | 0.90 | 10.00 | 13.70 | 118.50 | 2.50 | 70.70 | 23.09 | 0.75 | 52.19 |
| 647 | Teshale×22325 | 86.00 | 0.30 | 9.60 | 16.40 | 123.00 | 2.00 | 79.85 | 16.96 | 0.75 | 59.52 |
| 648 | Teshale×22325 | 81.50 | 0.40 | 10.70 | 9.60 | 121.50 | 2.50 | 78.30 | 21.87 | 0.81 | 61.70 |
| 649 | Teshale×22325 | 81.00 | 0.30 | 8.60 | 12.60 | 119.50 | 3.00 | 60.64 | 21.11 | 0.77 | 46.95 |
| 650 | Teshale×22325 | 84.00 | 0.90 | 10.00 | 9.50 | 124.00 | 2.50 | 78.15 | 24.73 | 0.81 | 63.48 |
| 651 | Teshale×22325 | 81.00 | 1.00 | 8.70 | 5.90 | 121.00 | 3.00 | 66.75 | 21.07 | 0.78 | 51.68 |
| 652 | Teshale×22325 | 85.50 | 0.44 | 10.50 | 9.80 | 122.50 | 2.50 | 56.98 | 21.54 | 0.73 | 43.03 |
| 653 | Teshale×22325 | 74.50 | 1.00 | 9.70 | 5.00 | 118.00 | 3.50 | 57.65 | 18.10 | 0.77 | 44.01 |
| 654 | Teshale×22325 | 88.00 | 0.00 | 10.67 | 2.00 | 123.00 | 2.00 | 97.17 | 16.14 | 0.73 | 71.50 |
| 655 | Teshale×22325 | 81.50 | 0.00 | 9.68 | 9.25 | 119.50 | 3.00 | 54.30 | 19.61 | 0.77 | 42.77 |
| 656 | Teshale×22325 | 93.00 | 0.00 | 9.10 | 4.60 | 127.00 | 1.50 | 49.80 | 20.86 | 0.77 | 38.47 |
| 657 | Teshale×22325 | 87.00 | 0.60 | 9.40 | 4.50 | 118.50 | 3.50 | 51.90 | 15.16 | 0.61 | 30.11 |
| 658 | Teshale×22325 | 80.00 | 0.00 | 9.70 | 21.30 | 121.50 | 2.50 | 59.45 | 22.92 | 0.84 | 49.29 |
| 659 | Teshale×22325 | 78.50 | 0.20 | 9.30 | 17.80 | 124.00 | 1.50 | 81.39 | 32.04 | 0.84 | 67.08 |
| 660 | Teshale×22325 | 91.00 | 1.00 | 12.25 | 0.00 | 122.50 | 2.50 | 183.69 | 18.20 | 0.72 | 131.50 |
| 661 | Teshale×22325 | 82.00 | 1.00 | 10.20 | 10.20 | 129.00 | 3.00 | 74.50 | 21.92 | 0.79 | 60.15 |
| 662 | Teshale×22325 | 81.50 | 0.20 | 10.30 | 11.30 | 117.50 | 3.00 | 52.50 | 17.52 | 0.68 | 35.49 |
| 663 | Teshale×22325 | 83.50 | 0.40 | 10.05 | 16.55 | 122.50 | 3.00 | 67.10 | 20.31 | 0.75 | 50.14 |
| 664 | Teshale×22325 | 79.50 | 0.67 | 10.67 | 8.34 | 121.50 | 3.00 | 42.17 | 21.07 | 0.62 | 25.82 |
| 665 | Teshale×22325 | 91.00 | 0.00 | 9.00 | 17.00 | 119.00 | 4.00 | 31.50 | 20.57 | 0.86 | 28.05 |
| 666 | Teshale×22325 | 77.00 | 0.50 | 9.80 | 21.30 | 121.00 | 2.00 | 72.30 | 23.69 | 0.77 | 54.79 |
| 667 | Teshale×22325 | 84.00 | 0.00 | 9.00 | 13.00 | 125.00 | 3.00 | 34.40 | 18.91 | 0.72 | 24.74 |
| 668 | Teshale×22325 | 84.50 | 0.20 | 9.38 | 16.23 | 117.00 | 3.00 | 43.72 | 23.25 | 0.70 | 31.19 |
| 669 | Teshale×22325 | 81.00 | 0.20 | 8.80 | 5.30 | 122.00 | 4.00 | 59.15 | 21.31 | 0.77 | 45.08 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 670 | Teshale×22325 | 86.00 | 0.50 | 8.75 | 8.57 | 123.50 | 3.00 | 53.24 | 20.25 | 0.70 | 37.90 |
| 671 | Teshale×22325 | 84.00 | 1.20 | 10.20 | 15.00 | 120.00 | 2.00 | 74.25 | 22.75 | 0.80 | 60.08 |
| 672 | Teshale×22325 | 88.50 | 0.30 | 9.80 | 9.90 | 127.00 | 2.00 | 64.00 | 21.73 | 0.75 | 49.54 |
| 673 | Teshale×22325 | 100.00 | 0.50 | 10.84 | 11.67 | 131.50 | 2.50 | 65.09 | 21.83 | 0.76 | 49.23 |
| 675 | Teshale×22325 | 87.00 | 1.20 | 10.10 | 13.05 | 125.00 | 2.00 | 105.83 | 22.30 | 0.73 | 75.94 |
| 676 | Teshale×22325 | 91.00 | 1.00 | 11.00 | 8.00 | 126.00 | 3.00 | 66.20 | 20.56 | 0.79 | 51.60 |
| 677 | Teshale×22325 | 91.00 | 0.00 | 11.50 | 17.00 | 125.00 | 2.00 | 92.00 | 26.25 | 0.79 | 72.58 |
| 678 | Teshale×22325 | 83.00 | 0.83 | 7.98 | 15.55 | 118.50 | 2.50 | 48.05 | 17.04 | 0.75 | 36.36 |
| 679 | Teshale×22325 | 78.00 | 0.40 | 8.20 | 16.60 | 118.50 | 3.50 | 43.50 | 18.03 | 0.73 | 31.50 |
| 680 | Teshale×22325 | 86.50 | 0.10 | 9.70 | 9.20 | 122.00 | 3.00 | 59.90 | 19.22 | 0.80 | 47.18 |
| 681 | Teshale×22325 | 88.50 | 0.00 | 9.50 | 8.50 | 124.00 | 2.00 | 53.50 | 27.33 | 0.63 | 36.00 |
| 682 | Teshale×22325 | 83.50 | 0.00 | 9.10 | 9.20 | 125.00 | 3.00 | 70.67 | 22.50 | 0.78 | 55.45 |
| 683 | Teshale×14298 | 86.50 | 0.10 | 8.60 | 6.40 | 119.50 | 4.00 | 49.84 | 14.38 | 0.60 | 29.90 |
| 684 | Teshale×14298 | 87.50 | 0.10 | 9.00 | 2.40 | 127.00 | 2.50 | 70.42 | 23.51 | 0.83 | 57.96 |
| 685 | Teshale×14298 | 88.50 | 0.94 | 11.80 | 8.44 | 124.50 | 3.50 | 84.49 | 22.36 | 0.77 | 67.17 |
| 686 | Teshale×14298 | 91.50 | 0.00 | 9.04 | 6.24 | 129.50 | 1.50 | 78.52 | 22.50 | 0.73 | 58.30 |
| 687 | Teshale×14298 | 95.00 | 1.50 | 9.00 | 3.50 | 128.00 | 2.00 | 52.75 | 23.02 | 0.85 | 44.95 |
| 25 | Teshale×14298 | 85.00 | 0.10 | 11.00 | 1.40 | 119.50 | 3.50 | 70.05 | 13.80 | 0.69 | 50.12 |
| 689 | Teshale×14298 | 76.50 | 0.20 | 9.50 | 9.60 | 117.00 | 2.50 | 62.98 | 20.54 | 0.80 | 50.32 |
| 690 | Teshale×14298 | 80.00 | 0.10 | 9.20 | 1.90 | 121.00 | 2.50 | 85.90 | 27.55 | 0.86 | 74.27 |
| 691 | Teshale×14298 | 86.50 | 0.00 | 9.90 | 2.50 | 117.50 | 4.00 | 85.20 | 19.19 | 0.73 | 61.53 |
| 692 | Teshale×14298 | 79.50 | 0.40 | 9.80 | 6.00 | 123.00 | 2.50 | 70.10 | 23.62 | 0.60 | 42.95 |
| 693 | Teshale×14298 | 78.50 | 0.50 | 8.57 | 13.57 | 123.00 | 2.00 | 53.17 | 25.61 | 0.78 | 42.37 |
| 694 | Teshale×14298 | 87.00 | 0.10 | 9.10 | 3.60 | 122.50 | 3.50 | 35.45 | 15.56 | 0.73 | 26.12 |
| 695 | Teshale×14298 | 79.00 | 0.30 | 9.10 | 14.90 | 127.00 | 2.50 | 51.30 | 24.00 | 0.78 | 41.04 |
| 696 | Teshale×14298 | 85.00 | 0.40 | 9.10 | 0.70 | 127.00 | 3.00 | 35.27 | 19.99 | 0.66 | 24.36 |
| 697 | Teshale×14298 | 82.50 | 0.00 | 9.40 | 6.70 | 119.50 | 3.50 | 53.15 | 17.94 | 0.71 | 38.57 |
| 698 | Teshale×14298 | 86.00 | 0.30 | 9.60 | 7.00 | 122.00 | 2.50 | 67.73 | 26.85 | 0.81 | 55.78 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 699 | Teshale×14298 | 88.00 | 0.30 | 10.55 | 3.20 | 122.00 | 3.00 | 58.63 | 24.63 | 0.69 | 40.00 |
| 700 | Teshale×14298 | 82.50 | 0.20 | 9.10 | 7.90 | 118.50 | 4.00 | 58.05 | 18.81 | 0.73 | 42.94 |
| 701 | Teshale×14298 | 81.50 | 0.50 | 8.00 | 7.08 | 122.50 | 2.50 | 47.90 | 22.73 | 0.83 | 39.56 |
| 702 | Teshale×14298 | 84.50 | 0.10 | 9.90 | 1.60 | 118.50 | 2.50 | 54.00 | 20.32 | 0.64 | 36.85 |
| 703 | Teshale×14298 | 82.00 | 0.10 | 9.50 | 9.90 | 117.00 | 3.00 | 58.55 | 26.49 | 0.73 | 44.03 |
| 704 | Teshale×14298 | 84.50 | 0.00 | 7.90 | 11.10 | 119.50 | 4.00 | 36.00 | 19.53 | 0.80 | 29.47 |
| 705 | Teshale×14298 | 80.50 | 0.40 | 9.70 | 7.60 | 122.50 | 3.50 | 63.80 | 22.17 | 0.73 | 48.35 |
| 706 | Teshale×14298 | 88.50 | 1.00 | 10.25 | 5.00 | 128.50 | 2.50 | 57.63 | 21.55 | 0.70 | 40.52 |
| 707 | Teshale×14298 | 85.00 | 0.10 | 10.00 | 1.10 | 118.50 | 3.00 | 49.35 | 17.34 | 0.70 | 35.97 |
| 708 | Teshale×14298 | 74.50 | 0.43 | 8.70 | 9.45 | 127.00 | 2.50 | 45.73 | 22.39 | 0.86 | 39.00 |
| 709 | Teshale×14298 | 83.00 | 0.20 | 9.20 | 5.70 | 122.00 | 3.00 | 70.30 | 26.63 | 0.82 | 58.87 |
| 710 | Teshale×14298 | 84.50 | 0.10 | 8.60 | 8.30 | 122.50 | 3.50 | 45.20 | 19.67 | 0.80 | 36.41 |
| 711 | Teshale×14298 | 80.50 | 0.50 | 9.67 | 7.90 | 119.50 | 3.00 | 96.10 | 24.16 | 0.72 | 68.21 |
| 712 | Teshale×14298 | 80.00 | 0.20 | 9.20 | 12.30 | 118.50 | 2.50 | 88.65 | 27.59 | 0.82 | 73.16 |
| 713 | Teshale×14298 | 78.50 | 0.60 | 9.70 | 14.50 | 125.00 | 2.50 | 69.05 | 24.98 | 0.84 | 58.16 |
| 714 | Teshale×14298 | 82.50 | 0.20 | 10.00 | 8.40 | 121.50 | 2.50 | 83.95 | 21.53 | 0.77 | 64.24 |
| 715 | Teshale×14298 | 79.00 | 1.10 | 9.80 | 9.30 | 121.00 | 2.50 | 78.05 | 22.04 | 0.80 | 62.24 |
| 716 | Teshale×14298 | 78.50 | 0.00 | 8.80 | 6.00 | 126.50 | 2.50 | 50.60 | 22.82 | 0.67 | 33.88 |
| 717 | Teshale×14298 | 89.00 | 0.54 | 10.20 | 13.94 | 131.00 | 2.00 | 59.90 | 21.83 | 0.75 | 44.70 |
| 718 | Teshale×14298 | 85.00 | 0.53 | 10.88 | 4.90 | 122.00 | 3.50 | 58.20 | 26.03 | 0.80 | 47.41 |
| 719 | Teshale×14298 | 80.00 | 1.00 | 9.20 | 21.50 | 121.00 | 3.00 | 59.37 | 22.19 | 0.79 | 47.26 |
| 720 | Teshale×14298 | 78.00 | 0.80 | 9.40 | 12.20 | 118.00 | 3.00 | 70.30 | 27.87 | 0.82 | 59.04 |
| 721 | Teshale×14298 | 89.00 | 0.00 | 9.38 | 3.50 | 120.00 | 3.00 | 52.09 | 25.95 | 0.68 | 35.49 |
| 722 | Teshale×14298 | 83.00 | 0.30 | 9.50 | 3.70 | 124.00 | 3.50 | 63.55 | 22.50 | 0.76 | 50.26 |
| 723 | Teshale×14298 | 81.00 | 0.20 | 9.10 | 7.80 | 123.00 | 2.50 | 59.30 | 27.07 | 0.79 | 47.03 |
| 724 | Teshale×14298 | 83.00 | 0.30 | 8.90 | 14.70 | 119.50 | 2.00 | 53.50 | 25.45 | 0.77 | 41.64 |
| 725 | Teshale×14298 | 84.50 | 0.00 | 10.50 | 4.60 | 118.50 | 3.00 | 60.60 | 19.92 | 0.77 | 47.55 |
| 726 | Teshale×14298 | 88.00 | 0.00 | 12.70 | 6.50 | 122.50 | 3.00 | 77.50 | 13.93 | 0.64 | 52.51 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 727 | Teshale×14298 | 82.00 | 0.60 | 9.70 | 10.00 | 122.50 | 3.00 | 62.30 | 16.35 | 0.68 | 44.33 |
| 728 | Teshale×14298 | 86.00 | 0.13 | 10.25 | 6.50 | 124.00 | 3.50 | 58.00 | 18.20 | 0.75 | 44.18 |
| 729 | Teshale×14298 | 79.00 | 0.60 | 9.40 | 13.80 | 124.50 | 1.50 | 78.77 | 27.69 | 0.76 | 61.07 |
| 730 | Teshale×14298 | 88.00 | 0.75 | 11.10 | 2.30 | 127.00 | 3.00 | 86.00 | 27.26 | 0.85 | 74.74 |
| 731 | Teshale×14298 | 87.50 | 0.45 | 9.65 | 3.40 | 123.00 | 3.00 | 87.80 | 19.21 | 0.66 | 62.01 |
| 732 | Teshale×14298 | 95.50 | 0.13 | 10.38 | 0.40 | 130.00 | 2.00 | 36.79 | 24.70 | 0.54 | 24.66 |
| 733 | Teshale×14298 | 88.00 | 0.10 | 9.40 | 3.80 | 121.50 | 2.50 | 75.20 | 20.03 | 0.78 | 58.30 |
| 734 | Teshale×14298 | 83.50 | 0.75 | 10.13 | 5.25 | 124.00 | 3.00 | 96.03 | 20.60 | 0.69 | 67.03 |
| 735 | Teshale×14298 | 90.00 | 0.35 | 10.20 | 5.30 | 126.50 | 2.50 | 74.85 | 21.40 | 0.81 | 60.38 |
| 736 | Teshale×14298 | 86.00 | 0.70 | 9.60 | 11.80 | 127.50 | 1.50 | 78.10 | 23.81 | 0.83 | 64.28 |
| 737 | Teshale×14298 | 86.00 | 0.50 | 10.65 | 5.38 | 123.50 | 2.50 | 63.75 | 20.66 | 0.71 | 47.01 |
| 738 | Teshale×14298 | 87.00 | 3.10 | 9.50 | 1.70 | 122.50 | 3.00 | 53.75 | 26.61 | 0.83 | 45.53 |
| 739 | Teshale×14298 | 77.00 | 1.75 | 10.25 | 1.75 | 116.00 | 2.00 | 91.20 | 25.10 | 0.79 | 72.20 |
| 740 | Teshale×14298 | 91.00 | 0.25 | 10.75 | 0.00 | 126.00 | 3.50 | 89.25 | 18.97 | 0.76 | 70.50 |
| 741 | Teshale×14298 | 95.50 | 0.80 | 11.80 | 4.00 | 136.00 | 3.50 | 69.49 | 15.43 | 0.71 | 49.10 |
| 742 | Teshale×14298 | 71.00 | 2.20 | 9.60 | 5.80 | 115.00 | 1.00 | 63.30 | 26.24 | 0.86 | 55.97 |
| 743 | Teshale×14298 | 81.50 | 1.17 | 9.74 | 11.67 | 125.00 | 3.00 | 67.75 | 20.22 | 0.59 | 68.93 |
| 744 | Teshale×14298 | 83.50 | 0.10 | 9.70 | 1.40 | 118.50 | 3.50 | 55.00 | 19.43 | 0.68 | 38.07 |
| 745 | Teshale×14298 | 87.00 | 0.00 | 9.17 | 6.00 | 128.00 | 3.00 | 61.63 | 18.22 | 0.76 | 46.08 |
| 746 | Teshale×14298 | 76.50 | 0.90 | 7.40 | 14.40 | 117.00 | 3.50 | 41.80 | 21.71 | 0.84 | 35.21 |
| 747 | Teshale×14298 | 86.00 | 0.40 | 10.00 | 7.80 | 119.00 | 3.00 | 60.70 | 17.24 | 0.75 | 45.38 |
| 748 | Teshale×14298 | 93.00 | 0.00 | 11.00 | 18.00 | 128.00 | 2.00 | 197.00 | 17.54 | 0.57 | 110.98 |
| 749 | Teshale×14298 | 86.00 | 0.25 | 10.00 | 2.75 | 119.50 | 2.50 | 91.73 | 22.82 | 0.77 | 69.82 |
| 750 | Teshale×14298 | 81.00 | 1.50 | 11.00 | 3.50 | 122.50 | 2.50 | 88.25 | 23.49 | 0.76 | 66.40 |
| 751 | Teshale×14298 | 79.50 | 0.20 | 7.70 | 18.90 | 119.50 | 3.50 | 71.35 | 26.70 | 0.81 | 57.32 |
| 752 | Teshale×14298 | 90.50 | 0.50 | 11.84 | 2.17 | 133.00 | 2.50 | 71.04 | 22.59 | 0.75 | 53.73 |
| 753 | Teshale×14298 | 86.00 | 0.70 | 11.40 | 6.30 | 126.00 | 3.50 | 80.63 | 22.57 | 0.72 | 59.54 |
| 754 | Teshale×14298 | 79.00 | 0.30 | 9.00 | 8.97 | 122.50 | 3.00 | 61.95 | 27.40 | 0.81 | 50.56 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 755 | Teshale×14298 | 85.00 | 0.20 | 10.20 | 5.40 | 125.00 | 4.00 | 83.10 | 17.24 | 0.74 | 60.88 |
| 756 | Teshale×14298 | 84.00 | 0.30 | 10.10 | 0.50 | 122.00 | 3.00 | 72.30 | 23.93 | 0.80 | 58.54 |
| 757 | Teshale×14298 | 84.00 | 0.73 | 8.98 | 8.28 | 129.00 | 1.50 | 69.92 | 22.52 | 0.76 | 52.15 |
| 758 | Teshale×14298 | 84.00 | 0.60 | 10.90 | 0.20 | 129.00 | 3.50 | 67.05 | 20.62 | 0.69 | 46.19 |
| 759 | Teshale×14298 | 82.00 | 0.70 | 8.60 | 4.70 | 121.00 | 4.00 | 67.33 | 21.01 | 0.68 | 46.96 |
| 760 | Teshale×14298 | 86.00 | 0.80 | 10.50 | 1.64 | 124.00 | 3.00 | 62.28 | 32.39 | 0.81 | 50.90 |
| 761 | Teshale×14298 | 74.50 | 0.80 | 8.37 | 0.10 | 125.50 | 1.00 | 53.95 | 24.53 | 0.78 | 42.61 |
| 762 | Teshale×14298 | 91.00 | 1.00 | 10.00 | 0.00 | 126.00 | 3.00 | 60.33 | 17.98 | 0.71 | 44.08 |
| 763 | Teshale×14298 | 72.00 | 1.20 | 10.60 | 18.80 | 120.00 | 3.00 | 130.25 | 25.06 | 0.81 | 103.20 |
| 764 | Teshale×14298 | 81.00 | 0.80 | 8.85 | 8.25 | 118.50 | 3.50 | 63.95 | 26.60 | 0.85 | 54.70 |
| 765 | Teshale×14298 | 85.00 | 0.20 | 8.80 | 2.80 | 119.50 | 3.50 | 65.30 | 19.51 | 0.70 | 46.66 |
| 766 | Teshale×14298 | 91.50 | 0.20 | 11.10 | 2.00 | 129.50 | 3.00 | 86.63 | 18.52 | 0.74 | 63.42 |
| 767 | Teshale×14298 | 87.50 | 0.98 | 8.48 | 1.13 | 123.00 | 2.50 | 50.45 | 20.79 | 0.82 | 42.46 |
| 768 | Teshale×14298 | 83.50 | 1.25 | 11.40 | 4.90 | 123.50 | 3.00 | 94.58 | 22.53 | 0.78 | 73.82 |
| 769 | Teshale×14298 | 93.00 | 0.79 | 11.38 | 3.38 | 130.00 | 2.50 | 43.07 | 18.37 | 0.78 | 33.15 |
| 770 | Teshale×14298 | 82.50 | 0.20 | 9.30 | 0.90 | 121.50 | 3.50 | 43.45 | 21.89 | 0.69 | 30.60 |
| 771 | Teshale×14298 | 83.50 | 0.00 | 9.30 | 6.60 | 118.50 | 3.50 | 51.60 | 19.78 | 0.81 | 41.86 |
| 772 | Teshale×14298 | 91.00 | 0.30 | 10.70 | 0.20 | 125.00 | 3.00 | 63.60 | 17.23 | 0.66 | 42.55 |
| 773 | Teshale×14298 | 87.00 | 0.70 | 9.60 | 8.70 | 126.50 | 2.00 | 63.90 | 25.96 | 0.81 | 51.09 |
| 774 | Teshale×14298 | 93.50 | 0.00 | 11.40 | 2.10 | 128.00 | 1.00 | 47.70 | 17.58 | 0.75 | 35.65 |
| 775 | Teshale×14298 | 80.50 | 0.20 | 7.80 | 12.30 | 118.50 | 3.50 | 35.49 | 19.84 | 0.66 | 23.57 |
| 776 | Teshale×14298 | 92.00 | 1.00 | 7.00 | 16.00 | 133.00 | 1.00 | 42.00 | 27.31 | 0.88 | 37.42 |
| 777 | Teshale×14298 | 83.00 | 0.00 | 9.30 | 11.98 | 119.50 | 4.00 | 65.80 | 18.04 | 0.76 | 49.39 |
| 778 | Teshale×14298 | 79.50 | 0.44 | 7.94 | 8.77 | 127.00 | 2.50 | 55.22 | 28.27 | 0.82 | 47.15 |
| 779 | Teshale×14298 | 88.00 | 0.85 | 10.05 | 2.40 | 125.50 | 2.50 | 75.90 | 22.12 | 0.66 | 51.04 |
| 780 | Teshale×14298 | 85.00 | 2.00 | 9.00 | 11.67 | 126.00 | 1.00 | 104.10 | 26.03 | 0.79 | 82.09 |
| 781 | Teshale×14298 | 80.00 | 0.00 | 9.20 | 7.70 | 123.50 | 1.50 | 75.17 | 23.77 | 0.84 | 63.21 |
| 782 | Teshale×14298 | 81.00 | 1.00 | 8.00 | 19.60 | 118.00 | 5.00 | 28.00 | 14.15 | 0.62 | 17.68 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 783 | Teshale×14298 | 85.50 | 0.50 | 11.00 | 2.00 | 123.50 | 3.00 | 71.90 | 16.16 | 0.77 | 54.70 |
| 784 | Teshale×14298 | 95.00 | 0.75 | 10.70 | 2.00 | 130.50 | 2.00 | 42.00 | 16.38 | 0.68 | 30.15 |
| 785 | Teshale×14298 | 87.00 | 0.40 | 10.25 | 11.55 | 126.50 | 2.00 | 74.60 | 21.80 | 0.82 | 60.73 |
| 786 | Teshale×14298 | 100.00 | 1.00 | 12.00 | 0.00 | 127.00 | 2.00 | 54.17 | 18.93 | 0.79 | 44.23 |
| 787 | Teshale×14298 | 87.00 | 0.17 | 8.50 | 7.84 | 126.00 | 1.50 | 63.00 | 23.93 | 0.75 | 46.88 |
| 788 | Teshale×14298 | 90.50 | 0.10 | 12.40 | 5.60 | 126.50 | 2.00 | 108.35 | 20.72 | 0.79 | 86.54 |
| 789 | Teshale×14298 | 83.50 | 0.20 | 9.10 | 5.80 | 122.50 | 2.50 | 114.70 | 27.05 | 0.80 | 91.64 |
| 790 | Teshale×14298 | 77.50 | 0.10 | 8.60 | 3.70 | 118.50 | 3.50 | 47.43 | 26.11 | 0.78 | 37.07 |
| 791 | Teshale×14298 | 81.50 | 0.20 | 9.50 | 5.40 | 117.50 | 3.50 | 51.80 | 20.30 | 0.75 | 39.62 |
| 792 | Teshale×14298 | 86.50 | 0.90 | 11.80 | 3.80 | 123.50 | 3.50 | 97.70 | 24.56 | 0.64 | 63.68 |
| 793 | Teshale×14298 | 74.00 | 0.40 | 8.40 | 10.30 | 115.50 | 3.00 | 41.50 | 23.46 | 0.79 | 32.80 |
| 794 | Teshale×14298 | 90.00 | 0.60 | 10.70 | 1.20 | 129.00 | 2.50 | 55.65 | 34.11 | 0.74 | 42.62 |
| 795 | Teshale×14298 | 94.00 | 1.04 | 10.92 | 3.00 | 127.00 | 2.50 | 93.35 | 26.27 | 0.79 | 73.84 |
| 796 | Teshale×14298 | 89.50 | 0.84 | 11.17 | 0.00 | 130.50 | 2.50 | 59.59 | 18.86 | 0.72 | 44.67 |
| 797 | Teshale×14298 | 86.00 | 0.00 | 8.50 | 7.50 | 125.00 | 3.00 | 64.00 | 18.49 | 0.66 | 41.57 |
| 798 | Teshale×14298 | 79.50 | 1.00 | 8.70 | 13.90 | 119.50 | 2.50 | 59.50 | 29.69 | 0.75 | 44.63 |
| 799 | Teshale×14298 | 79.50 | 1.25 | 10.05 | 7.60 | 119.50 | 3.50 | 78.27 | 19.58 | 0.80 | 61.76 |
| 800 | Teshale×14298 | 94.50 | 0.75 | 10.05 | 0.40 | 125.50 | 2.00 | 48.92 | 21.82 | 0.74 | 38.03 |
| 801 | Teshale×14298 | 88.50 | 0.40 | 12.10 | 3.10 | 127.00 | 2.50 | 93.15 | 18.94 | 0.78 | 72.79 |
| 802 | Teshale×14298 | 85.50 | 0.20 | 8.70 | 11.70 | 126.00 | 4.00 | 53.79 | 21.28 | 0.74 | 40.33 |
| 803 | Teshale×14298 | 87.00 | 0.25 | 9.21 | 1.34 | 127.50 | 2.00 | 29.50 | 19.02 | 0.70 | 21.08 |
| 804 | Teshale×14298 | 77.00 | 0.00 | 7.50 | 7.50 | 125.00 | 3.00 | 67.50 | 28.60 | 0.79 | 52.27 |
| 805 | Teshale×14298 | 88.00 | 0.38 | 9.88 | 8.59 | 128.50 | 2.00 | 57.82 | 23.80 | 0.75 | 43.26 |
| 806 | Teshale×14298 | 90.00 | 0.27 | 10.27 | 2.60 | 123.50 | 3.50 | 62.38 | 21.32 | 0.71 | 45.07 |
| 807 | Teshale×14298 | 78.50 | 1.90 | 9.60 | 11.00 | 125.00 | 2.50 | 71.25 | 29.30 | 0.86 | 60.91 |
| 808 | Teshale×14298 | 74.00 | 0.70 | 9.10 | 12.40 | 120.50 | 2.50 | 47.95 | 22.00 | 0.76 | 36.85 |
| 809 | Teshale×14298 | 84.50 | 0.30 | 9.20 | 3.10 | 122.50 | 3.00 | 59.45 | 22.89 | 0.80 | 49.05 |
| 810 | Teshale×14298 | 84.00 | 0.90 | 9.70 | 2.30 | 121.00 | 2.00 | 45.50 | 23.16 | 0.77 | 34.21 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 811 | Teshale×14298 | 80.50 | 0.50 | 10.30 | 2.10 | 117.00 | 2.50 | 40.44 | 19.31 | 0.79 | 30.94 |
| 812 | Teshale×14298 | 81.50 | 0.00 | 9.00 | 13.20 | 118.50 | 3.50 | 52.35 | 23.03 | 0.79 | 41.43 |
| 813 | Teshale×14298 | 86.00 | 0.00 | 10.00 | 2.13 | 125.50 | 4.00 | 68.82 | 18.03 | 0.73 | 49.49 |
| 814 | Teshale×14298 | 92.00 | 0.00 | 10.00 | 17.00 | 132.00 | 1.00 | 36.00 | 30.37 | 0.90 | 32.30 |
| 815 | Teshale×14298 | 76.00 | 0.20 | 10.40 | 2.80 | 125.00 | 3.00 | 55.20 | 23.51 | 0.72 | 39.78 |
| 816 | Teshale×14298 | 87.50 | 1.77 | 8.50 | 11.07 | 127.00 | 3.00 | 65.87 | 25.07 | 0.76 | 50.22 |
| 817 | Teshale×14298 | 75.00 | 0.00 | 11.40 | 0.40 | 129.00 | 1.00 | 50.13 | 37.23 | 0.71 | 36.11 |
| 818 | Teshale×14298 | 94.00 | 1.00 | 11.60 | 0.00 | 128.00 | 3.00 | 55.85 | 16.73 | 0.74 | 40.64 |
| 819 | Teshale×14298 | 91.50 | 0.00 | 11.38 | 0.00 | 128.00 | 2.00 | 70.07 | 17.66 | 0.75 | 53.15 |
| 821 | Teshale×14298 | 84.00 | 0.00 | 9.70 | 3.60 | 125.00 | 1.50 | 98.25 | 23.56 | 0.80 | 79.14 |
| 822 | Teshale×14298 | 89.50 | 1.50 | 12.71 | 1.38 | 130.50 | 2.50 | 69.42 | 20.07 | 0.74 | 51.65 |
| 823 | Teshale×14298 | 88.50 | 0.20 | 12.30 | 0.00 | 126.00 | 3.50 | 72.92 | 22.90 | 0.77 | 56.82 |
| 824 | Teshale×14298 | 92.00 | 1.67 | 9.67 | 1.67 | 134.00 | 3.00 | 66.50 | 19.75 | 0.85 | 55.79 |
| 825 | Teshale×14298 | 81.00 | 2.50 | 10.50 | 0.50 | 119.00 | 3.00 | 60.63 | 20.27 | 0.80 | 49.17 |
| 826 | Teshale×14298 | 91.00 | 1.00 | 12.00 | 0.50 | 126.00 | 3.00 | 68.75 | 21.69 | 0.70 | 48.66 |
| 827 | Teshale×14298 | 86.00 | 0.00 | 10.00 | 0.00 | 132.00 | 3.00 | 36.00 | 17.73 | 0.63 | 22.46 |
| 828 | Teshale×14298 | 93.00 | 0.00 | 11.75 | 0.00 | 129.50 | 2.50 | 78.94 | 18.27 | 0.63 | 54.21 |
| 829 | Teshale×14298 | 85.00 | 0.00 | 8.33 | 17.33 | 119.00 | 3.00 | 88.33 | 26.70 | 0.82 | 72.33 |
| 830 | Teshale×14298 | 89.50 | 0.34 | 12.00 | 1.00 | 126.00 | 2.50 | 73.95 | 15.60 | 0.72 | 53.77 |
| 831 | Teshale×14298 | 87.50 | 2.13 | 10.00 | 0.00 | 122.00 | 2.50 | 75.22 | 27.56 | 0.87 | 65.37 |
| 832 | Teshale×16173 | 86.50 | 0.30 | 11.30 | 4.40 | 122.50 | 2.00 | 91.21 | 22.05 | 0.79 | 72.15 |
| 833 | Teshale×16173 | 88.00 | 0.60 | 10.24 | 0.75 | 128.00 | 3.50 | 62.82 | 18.06 | 0.75 | 48.73 |
| 834 | Teshale×16173 | 90.50 | 0.70 | 9.90 | 7.20 | 122.00 | 2.00 | 102.42 | 23.04 | 0.80 | 82.81 |
| 835 | Teshale×16173 | 91.00 | 0.00 | 10.40 | 6.60 | 128.00 | 1.00 | 92.70 | 25.04 | 0.80 | 75.22 |
| 836 | Teshale×16173 | 95.00 | 0.00 | 10.00 | 11.00 | 126.00 | 2.00 | 93.00 | 16.76 | 0.74 | 70.10 |
| 837 | Teshale×16173 | 93.00 | 0.00 | 12.10 | 1.40 | 121.50 | 3.00 | 76.13 | 16.78 | 0.54 | 41.03 |
| 838 | Teshale×16173 | 83.50 | 1.10 | 10.20 | 1.78 | 122.50 | 4.00 | 103.07 | 21.38 | 0.77 | 78.52 |
| 840 | Teshale×16173 | 85.00 | 0.50 | 10.50 | 3.80 | 124.00 | 2.50 | 79.10 | 21.13 | 0.80 | 63.61 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 841 | Teshale×16173 | 90.50 | 0.17 | 9.90 | 1.14 | 126.00 | 3.50 | 83.39 | 20.78 | 0.73 | 61.07 |
| 842 | Teshale×16173 | 83.50 | 0.40 | 11.00 | 5.00 | 121.00 | 2.50 | 77.75 | 24.55 | 0.80 | 62.07 |
| 843 | Teshale×16173 | 89.00 | 0.00 | 9.43 | 6.60 | 126.00 | 3.50 | 53.53 | 15.47 | 0.75 | 39.58 |
| 844 | Teshale×16173 | 92.00 | 0.33 | 9.33 | 0.00 | 127.00 | 2.00 | 74.50 | 19.84 | 0.79 | 58.53 |
| 845 | Teshale×16173 | 91.50 | 0.67 | 10.64 | 1.47 | 127.00 | 2.00 | 89.57 | 24.87 | 0.71 | 64.04 |
| 846 | Teshale×16173 | 88.50 | 0.10 | 11.03 | 1.73 | 126.00 | 3.00 | 38.30 | 14.04 | 0.63 | 24.31 |
| 847 | Teshale×16173 | 87.00 | 0.50 | 9.53 | 6.43 | 123.00 | 2.50 | 89.43 | 22.72 | 0.81 | 72.35 |
| 848 | Teshale×16173 | 84.00 | 0.40 | 9.80 | 1.75 | 118.00 | 3.00 | 57.70 | 14.79 | 0.69 | 39.45 |
| 849 | Teshale×16173 | 89.00 | 0.30 | 10.15 | 1.30 | 123.00 | 3.50 | 54.13 | 16.06 | 0.70 | 37.35 |
| 850 | Teshale×16173 | 85.00 | 0.20 | 9.60 | 8.40 | 118.00 | 3.00 | 67.38 | 15.68 | 0.79 | 53.19 |
| 851 | Teshale×16173 | 87.50 | 0.10 | 10.25 | 7.50 | 121.50 | 4.00 | 57.68 | 22.57 | 0.73 | 42.84 |
| 852 | Teshale×16173 | 81.00 | 0.70 | 10.10 | 3.90 | 119.00 | 2.00 | 72.95 | 21.89 | 0.77 | 59.55 |
| 853 | Teshale×16173 | 86.00 | 0.20 | 10.40 | 0.00 | 119.00 | 3.00 | 76.75 | 17.64 | 0.73 | 57.34 |
| 854 | Teshale×16173 | 84.00 | 0.50 | 10.70 | 5.60 | 120.50 | 3.00 | 55.59 | 17.62 | 0.71 | 40.01 |
| 855 | Teshale×16173 | 83.00 | 0.10 | 9.20 | 12.20 | 118.50 | 3.50 | 43.95 | 17.27 | 0.65 | 30.26 |
| 856 | Teshale×16173 | 88.50 | 0.40 | 10.40 | 4.10 | 125.50 | 3.00 | 84.70 | 17.80 | 0.78 | 66.92 |
| 857 | Teshale×16173 | 83.50 | 0.60 | 11.35 | 8.88 | 126.00 | 3.00 | 94.59 | 26.13 | 0.84 | 79.89 |
| 858 | Teshale×16173 | 82.50 | 0.50 | 9.80 | 5.40 | 121.50 | 2.00 | 81.25 | 24.66 | 0.84 | 67.74 |
| 860 | Teshale×16173 | 85.00 | 0.53 | 10.68 | 2.40 | 124.50 | 3.00 | 71.10 | 20.88 | 0.78 | 56.61 |
| 861 | Teshale×16173 | 90.00 | 0.00 | 9.40 | 5.80 | 129.00 | 4.00 | 73.38 | 15.47 | 0.82 | 59.11 |
| 862 | Teshale×16173 | 86.50 | 0.40 | 9.70 | 3.70 | 119.50 | 2.50 | 87.23 | 21.63 | 0.76 | 67.06 |
| 863 | Teshale×16173 | 79.00 | 0.20 | 11.80 | 7.20 | 120.00 | 2.00 | 103.60 | 27.92 | 0.78 | 81.65 |
| 864 | Teshale×16173 | 87.00 | 0.00 | 9.80 | 4.00 | 119.50 | 3.50 | 64.40 | 17.32 | 0.71 | 45.26 |
| 865 | Teshale×16173 | 86.00 | 0.20 | 9.70 | 19.50 | 126.00 | 2.00 | 54.39 | 22.08 | 0.78 | 42.68 |
| 866 | Teshale×16173 | 84.50 | 0.47 | 9.10 | 5.04 | 118.50 | 2.50 | 94.40 | 20.61 | 0.77 | 73.03 |
| 867 | Teshale×16173 | 79.50 | 0.90 | 10.50 | 6.10 | 116.00 | 3.50 | 72.59 | 22.67 | 0.79 | 57.32 |
| 868 | Teshale×16173 | 85.50 | 0.10 | 9.90 | 6.30 | 123.00 | 2.50 | 73.70 | 17.90 | 0.82 | 58.99 |
| 869 | Teshale×16173 | 86.50 | 0.25 | 9.23 | 3.25 | 122.00 | 3.50 | 61.35 | 18.62 | 0.76 | 47.25 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 870 | Teshale×16173 | 88.50 | 0.20 | 10.25 | 8.93 | 126.00 | 2.00 | 105.69 | 23.10 | 0.75 | 80.40 |
| 871 | Teshale×16173 | 81.50 | 0.40 | 10.10 | 4.90 | 118.50 | 3.50 | 75.95 | 17.41 | 0.76 | 56.89 |
| 872 | Teshale×16173 | 92.50 | 0.75 | 10.38 | 0.00 | 128.50 | 3.00 | 65.95 | 18.52 | 0.78 | 52.22 |
| 873 | Teshale×16173 | 86.50 | 0.20 | 10.80 | 6.10 | 126.00 | 3.00 | 53.95 | 19.26 | 0.73 | 40.04 |
| 874 | Teshale×16173 | 89.50 | 0.84 | 11.80 | 8.30 | 128.00 | 3.00 | 87.45 | 18.65 | 0.76 | 65.33 |
| 875 | Teshale×16173 | 90.00 | 0.00 | 10.00 | 0.00 | 121.00 | 4.50 | 56.85 | 13.46 | 0.68 | 39.09 |
| 876 | Teshale×16173 | 84.50 | 0.30 | 10.03 | 7.63 | 118.50 | 3.50 | 56.78 | 19.35 | 0.82 | 44.30 |
| 877 | Teshale×16173 | 79.00 | 0.00 | 9.75 | 1.00 | 123.00 | 4.00 | 107.25 | 20.81 | 0.81 | 85.56 |
| 878 | Teshale×16173 | 85.00 | 0.40 | 10.40 | 2.30 | 123.50 | 3.00 | 92.15 | 21.62 | 0.75 | 69.60 |
| 879 | Teshale×16173 | 88.00 | 0.75 | 10.80 | 1.55 | 124.50 | 2.50 | 93.30 | 23.27 | 0.77 | 70.63 |
| 880 | Teshale×16173 | 81.50 | 0.20 | 11.00 | 6.20 | 120.00 | 3.00 | 106.50 | 23.47 | 0.78 | 83.97 |
| 881 | Teshale×16173 | 89.00 | 0.00 | 10.70 | 1.80 | 126.00 | 3.50 | 46.00 | 13.95 | 0.64 | 30.80 |
| 882 | Teshale×16173 | 85.50 | 0.50 | 11.00 | 6.38 | 119.50 | 4.00 | 81.25 | 19.24 | 0.76 | 60.02 |
| 883 | Teshale×16173 | 87.00 | 0.20 | 10.80 | 3.40 | 121.00 | 3.00 | 64.50 | 17.92 | 0.75 | 48.20 |
| 884 | Teshale×16173 | 91.50 | 0.00 | 10.00 | 5.17 | 126.00 | 2.50 | 61.00 | 17.75 | 0.75 | 45.45 |
| 885 | Teshale×16173 | 88.00 | 0.17 | 9.40 | 5.50 | 119.50 | 2.50 | 90.00 | 19.67 | 0.75 | 67.40 |
| 886 | Teshale×16173 | 86.50 | 0.00 | 10.70 | 3.40 | 122.50 | 3.00 | 64.24 | 21.92 | 0.78 | 50.99 |
| 887 | Teshale×16173 | 91.00 | 0.20 | 10.00 | 3.40 | 127.00 | 3.00 | 89.40 | 20.58 | 0.80 | 71.32 |
| 888 | Teshale×16173 | 91.00 | 0.00 | 10.00 | 1.00 | 127.00 | 2.00 | 63.70 | 17.90 | 0.77 | 50.12 |
| 889 | Teshale×16173 | 88.50 | 0.25 | 10.15 | 7.13 | 129.50 | 2.50 | 66.85 | 20.70 | 0.75 | 50.24 |
| 890 | Teshale×16173 | 92.00 | 1.60 | 9.40 | 2.70 | 132.50 | 3.00 | 39.07 | 16.66 | 0.73 | 27.95 |
| 891 | Teshale×16173 | 86.00 | 0.00 | 10.40 | 2.40 | 119.00 | 3.00 | 92.90 | 19.00 | 0.77 | 69.20 |
| 892 | Teshale×16173 | 88.50 | 0.00 | 9.80 | 7.40 | 123.50 | 2.50 | 76.55 | 23.66 | 0.78 | 60.19 |
| 893 | Teshale×16173 | 87.00 | 0.00 | 10.70 | 1.90 | 122.50 | 3.00 | 65.70 | 16.92 | 0.73 | 47.35 |
| 894 | Teshale×16173 | 86.00 | 0.20 | 10.60 | 1.80 | 119.00 | 3.00 | 60.50 | 16.02 | 0.77 | 45.80 |
| 895 | Teshale×16173 | 85.00 | 0.50 | 10.50 | 3.10 | 119.50 | 3.00 | 79.45 | 18.17 | 0.77 | 61.03 |
| 896 | Teshale×16173 | 85.00 | 0.50 | 11.30 | 5.90 | 123.50 | 3.00 | 94.00 | 21.61 | 0.80 | 74.40 |
| 897 | Teshale×16173 | 87.50 | 0.30 | 10.50 | 3.00 | 121.00 | 3.50 | 57.30 | 17.52 | 0.70 | 41.41 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 898 | Teshale×16173 | 91.00 | 0.00 | 10.00 | 0.60 | 123.00 | 3.00 | 53.00 | 13.73 | 0.72 | 37.52 |
| 899 | Teshale×16173 | 88.50 | 0.25 | 9.15 | 8.05 | 124.00 | 2.00 | 85.35 | 21.46 | 0.77 | 66.67 |
| 900 | Teshale×16173 | 79.50 | 0.60 | 11.40 | 6.20 | 117.50 | 3.00 | 103.30 | 26.21 | 0.80 | 80.34 |
| 901 | Teshale×16173 | 79.00 | 1.40 | 11.00 | 3.40 | 118.00 | 4.00 | 90.00 | 19.67 | 0.73 | 66.77 |
| 902 | Teshale×16173 | 89.00 | 0.10 | 10.15 | 2.00 | 123.00 | 3.00 | 65.45 | 16.13 | 0.73 | 48.46 |
| 903 | Teshale×16173 | 91.00 | 0.80 | 9.40 | 0.00 | 127.00 | 4.00 | 62.70 | 15.58 | 0.75 | 48.30 |
| 904 | Teshale×16173 | 81.00 | 1.94 | 12.54 | 4.40 | 118.50 | 3.00 | 133.19 | 26.10 | 0.81 | 109.97 |
| 905 | Teshale×16173 | 86.00 | 0.64 | 11.27 | 2.44 | 122.00 | 3.50 | 163.50 | 10.48 | 0.74 | 120.74 |
| 906 | Teshale×16173 | 88.00 | 0.40 | 9.40 | 2.40 | 120.00 | 3.00 | 53.40 | 14.85 | 0.64 | 34.52 |
| 907 | Teshale×16173 | 91.00 | 0.00 | 10.10 | 9.25 | 125.50 | 2.50 | 74.28 | 17.37 | 0.76 | 56.98 |
| 908 | Teshale×16173 | 84.00 | 0.30 | 10.45 | 5.40 | 118.50 | 3.50 | 101.93 | 21.55 | 0.76 | 76.82 |
| 909 | Teshale×16173 | 95.00 | 0.00 | 10.00 | 4.00 | 127.00 | 2.00 | 57.30 | 17.84 | 0.69 | 39.44 |
| 910 | Teshale×16173 | 88.50 | 0.30 | 9.77 | 6.13 | 122.50 | 2.00 | 72.65 | 21.33 | 0.71 | 52.41 |
| 911 | Teshale×16173 | 89.00 | 0.20 | 10.30 | 4.90 | 128.00 | 3.00 | 78.70 | 22.64 | 0.75 | 59.98 |
| 912 | Teshale×16173 | 89.50 | 0.00 | 10.20 | 2.50 | 128.00 | 2.00 | 67.97 | 20.12 | 0.75 | 50.58 |
| 913 | Teshale×16173 | 90.00 | 1.34 | 10.50 | 7.33 | 124.50 | 2.50 | 79.17 | 18.10 | 0.77 | 62.21 |
| 914 | Teshale×16173 | 85.50 | 0.25 | 9.68 | 7.95 | 125.00 | 1.50 | 107.40 | 22.90 | 0.79 | 85.32 |
| 915 | Teshale×16173 | 81.00 | 0.20 | 10.40 | 8.00 | 117.00 | 3.00 | 63.20 | 21.76 | 0.81 | 49.93 |
| 916 | Teshale×16173 | 85.50 | 0.10 | 9.05 | 22.65 | 123.00 | 1.00 | 94.15 | 28.04 | 0.88 | 82.71 |
| 917 | Teshale×16173 | 88.00 | 0.00 | 10.00 | 4.20 | 119.00 | 3.00 | 55.10 | 14.25 | 0.65 | 37.61 |
| 918 | Teshale×16173 | 87.50 | 0.00 | 10.34 | 5.42 | 129.00 | 1.50 | 85.84 | 31.41 | 0.83 | 71.19 |
| 919 | Teshale×16173 | 85.50 | 0.50 | 10.70 | 3.20 | 122.00 | 2.50 | 56.70 | 16.07 | 0.73 | 42.35 |
| 920 | Teshale×16173 | 86.00 | 0.00 | 10.20 | 15.20 | 119.00 | 2.00 | 79.75 | 19.72 | 0.82 | 63.87 |
| 921 | Teshale×16173 | 83.00 | 0.68 | 10.73 | 5.60 | 117.50 | 3.00 | 83.35 | 21.10 | 0.78 | 64.61 |
| 922 | Teshale×16173 | 85.00 | 0.30 | 10.30 | 6.60 | 119.50 | 3.50 | 69.24 | 18.92 | 0.80 | 55.12 |
| 923 | Teshale×16173 | 85.00 | 0.20 | 9.40 | 10.80 | 117.00 | 4.00 | 115.50 | 20.75 | 0.76 | 88.90 |
| 924 | Teshale×16173 | 99.00 | 0.00 | 10.60 | 3.80 | 131.00 | 2.00 | 63.75 | 14.46 | 0.71 | 46.33 |
| 925 | Teshale×16173 | 85.00 | 0.70 | 9.37 | 8.07 | 123.50 | 3.00 | 69.85 | 16.30 | 0.75 | 52.26 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 926 | Teshale×16173 | 90.00 | 0.00 | 9.27 | 0.84 | 126.00 | 4.00 | 62.54 | 12.99 | 0.62 | 39.28 |
| 927 | Teshale×16173 | 86.00 | 0.10 | 10.90 | 14.30 | 120.50 | 2.50 | 80.15 | 24.12 | 0.74 | 59.86 |
| 928 | Teshale×16173 | 84.00 | 0.50 | 9.37 | 9.80 | 124.00 | 2.50 | 88.20 | 23.47 | 0.82 | 72.20 |
| 929 | Teshale×16173 | 81.50 | 1.50 | 11.25 | 6.34 | 119.50 | 2.50 | 96.82 | 20.77 | 0.78 | 75.39 |
| 930 | Teshale×16173 | 87.00 | 0.30 | 9.70 | 4.40 | 119.50 | 3.50 | 66.99 | 17.69 | 0.75 | 51.00 |
| 931 | Teshale×16173 | 88.00 | 1.00 | 10.00 | 11.00 | 121.00 | 3.00 | 67.00 | 22.50 | 0.80 | 54.23 |
| 932 | Teshale×16173 | 81.00 | 0.94 | 10.17 | 5.80 | 122.00 | 2.50 | 99.95 | 22.84 | 0.78 | 79.33 |
| 933 | Teshale×16173 | 84.50 | 0.43 | 8.30 | 6.80 | 124.50 | 3.00 | 71.67 | 21.74 | 0.77 | 54.47 |
| 934 | Teshale×16173 | 88.00 | 0.23 | 9.83 | 3.00 | 122.50 | 3.00 | 72.88 | 18.39 | 0.76 | 55.66 |
| 935 | Teshale×16173 | 83.00 | 0.00 | 9.70 | 11.40 | 123.00 | 2.50 | 52.94 | 22.33 | 0.81 | 42.63 |
| 936 | Teshale×16173 | 86.50 | 0.30 | 12.10 | 4.90 | 117.50 | 2.50 | 86.84 | 21.77 | 0.69 | 61.86 |
| 937 | Teshale×16173 | 86.00 | 0.10 | 10.27 | 2.77 | 121.50 | 3.00 | 63.50 | 18.07 | 0.74 | 47.61 |
| 938 | Teshale×16173 | 84.50 | 0.10 | 10.90 | 5.50 | 118.50 | 3.50 | 92.41 | 21.51 | 0.66 | 62.32 |
| 939 | Teshale×16173 | 86.00 | 0.00 | 10.60 | 4.00 | 119.50 | 4.00 | 76.10 | 19.31 | 0.79 | 58.99 |
| 940 | Teshale×16173 | 86.00 | 0.20 | 9.30 | 15.00 | 121.50 | 3.00 | 50.89 | 17.80 | 0.78 | 39.28 |
| 941 | Teshale×16173 | 85.50 | 0.38 | 9.60 | 5.10 | 119.50 | 2.50 | 101.75 | 18.56 | 0.76 | 81.04 |
| 942 | Teshale×16173 | 85.50 | 0.80 | 10.00 | 4.90 | 127.00 | 2.00 | 67.95 | 21.48 | 0.75 | 50.62 |
| 943 | Teshale×16173 | 90.50 | 0.67 | 10.00 | 1.67 | 124.50 | 3.00 | 48.76 | 14.15 | 0.65 | 31.44 |
| 944 | Teshale×16173 | 79.00 | 1.00 | 10.60 | 6.20 | 119.00 | 4.00 | 93.20 | 23.84 | 0.81 | 74.88 |
| 945 | Teshale×16173 | 89.50 | 0.00 | 11.10 | 9.80 | 123.00 | 3.00 | 45.60 | 14.51 | 0.68 | 31.93 |
| 946 | Teshale×16173 | 85.00 | 0.40 | 10.50 | 1.90 | 119.50 | 3.00 | 60.25 | 18.92 | 0.73 | 44.37 |
| 947 | Teshale×16173 | 91.00 | 0.20 | 10.30 | 2.80 | 127.50 | 3.00 | 49.42 | 15.41 | 0.60 | 31.04 |
| 948 | Teshale×16173 | 86.50 | 0.20 | 10.20 | 4.60 | 119.50 | 4.00 | 61.35 | 19.20 | 0.78 | 47.61 |
| 949 | Teshale×16173 | 90.50 | 0.48 | 10.23 | 1.03 | 124.00 | 3.00 | 59.30 | 17.59 | 0.75 | 44.33 |
| 950 | Teshale×16173 | 83.50 | 0.30 | 11.00 | 9.30 | 121.00 | 3.50 | 86.60 | 22.76 | 0.80 | 70.22 |
| 951 | Teshale×16173 | 82.50 | 0.40 | 10.80 | 3.10 | 119.50 | 2.50 | 90.60 | 21.02 | 0.77 | 69.60 |
| 952 | Teshale×16173 | 84.00 | 0.77 | 10.17 | 2.77 | 121.00 | 2.50 | 84.95 | 19.47 | 0.69 | 57.41 |
| 953 | Teshale×16173 | 85.50 | 0.10 | 9.60 | 5.90 | 123.50 | 3.00 | 72.35 | 18.11 | 0.78 | 55.84 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 954 | Teshale×16173 | 80.00 | 0.90 | 10.50 | 10.20 | 122.00 | 3.50 | 82.30 | 21.79 | 0.80 | 66.36 |
| 955 | Teshale×16173 | 90.50 | 0.10 | 9.87 | 4.07 | 122.50 | 3.00 | 46.77 | 15.09 | 0.66 | 31.95 |
| 956 | Teshale×16173 | 84.00 | 0.30 | 9.60 | 0.80 | 122.00 | 3.50 | 73.75 | 18.78 | 0.73 | 53.64 |
| 957 | Teshale×16173 | 79.00 | 0.20 | 10.40 | 8.00 | 120.00 | 2.00 | 63.00 | 26.24 | 0.50 | 81.07 |
| 958 | Teshale×16173 | 85.50 | 0.25 | 10.00 | 9.25 | 126.00 | 2.00 | 71.29 | 21.68 | 0.76 | 55.14 |
| 959 | Teshale×16173 | 85.50 | 0.20 | 11.00 | 3.60 | 122.00 | 3.00 | 79.70 | 21.05 | 0.74 | 60.08 |
| 960 | Teshale×16173 | 82.00 | 0.40 | 10.40 | 7.40 | 120.00 | 3.00 | 84.97 | 21.68 | 0.79 | 66.30 |
| 961 | Teshale×16173 | 83.50 | 0.20 | 11.00 | 5.40 | 119.50 | 3.00 | 67.70 | 19.70 | 0.74 | 52.13 |
| 962 | Teshale×16173 | 86.50 | 0.13 | 9.48 | 6.88 | 122.50 | 2.50 | 83.80 | 24.14 | 0.80 | 65.78 |
| 963 | Teshale×16173 | 95.00 | 1.00 | 10.40 | 2.90 | 124.00 | 2.50 | 43.15 | 16.87 | 0.83 | 33.87 |
| 964 | Teshale×16173 | 84.00 | 0.90 | 10.50 | 4.60 | 117.50 | 3.50 | 93.05 | 22.26 | 0.76 | 70.38 |
| 965 | Teshale×16173 | 87.50 | 0.50 | 9.90 | 1.50 | 122.50 | 2.50 | 49.33 | 16.82 | 0.71 | 34.16 |
| 966 | Teshale×3583 | 79.50 | 0.60 | 10.80 | 10.10 | 116.50 | 3.00 | 79.15 | 18.44 | 0.72 | 56.57 |
| 967 | Teshale×3583 | 86.50 | 0.20 | 9.70 | 5.00 | 126.00 | 3.00 | 107.69 | 21.15 | 0.77 | 83.17 |
| 968 | Teshale×3583 | 86.00 | 0.00 | 10.84 | 1.67 | 122.00 | 4.00 | 85.44 | 22.39 | 0.71 | 60.06 |
| 969 | Teshale×3583 | 83.50 | 0.00 | 9.40 | 10.70 | 118.50 | 2.50 | 61.95 | 20.20 | 0.73 | 45.71 |
| 970 | Teshale×3583 | 85.00 | 1.13 | 9.63 | 12.63 | 127.00 | 1.00 | 142.42 | 29.68 | 0.86 | 121.44 |
| 971 | Teshale×3583 | 84.00 | 0.00 | 10.75 | 6.00 | 127.00 | 3.00 | 44.63 | 22.23 | 0.67 | 30.03 |
| 972 | Teshale×3583 | 87.50 | 0.50 | 9.40 | 7.20 | 121.00 | 2.00 | 75.18 | 16.75 | 0.77 | 58.28 |
| 973 | Teshale×3583 | 83.50 | 0.10 | 10.80 | 7.90 | 118.00 | 3.00 | 64.73 | 20.79 | 0.78 | 50.03 |
| 974 | Teshale×3583 | 86.00 | 0.75 | 10.84 | 2.00 | 123.00 | 2.50 | 76.65 | 17.03 | 0.68 | 56.24 |
| 975 | Teshale×3583 | 91.00 | 0.60 | 10.20 | 0.00 | 128.00 | 2.00 | 51.50 | 15.73 | 0.71 | 36.23 |
| 976 | Teshale×3583 | 83.50 | 2.00 | 9.50 | 14.50 | 123.00 | 2.00 | 102.59 | 24.86 | 0.83 | 85.28 |
| 977 | Teshale×3583 | 85.50 | 0.10 | 10.10 | 2.00 | 123.00 | 3.00 | 54.05 | 13.72 | 0.68 | 38.22 |
| 978 | Teshale×3583 | 82.50 | 1.00 | 9.20 | 8.70 | 122.50 | 2.50 | 44.40 | 18.59 | 0.78 | 33.98 |
| 979 | Teshale×3583 | 80.00 | 0.70 | 8.50 | 14.10 | 118.00 | 2.00 | 78.90 | 25.78 | 0.78 | 62.04 |
| 980 | Teshale×3583 | 85.00 | 0.00 | 9.10 | 12.40 | 124.00 | 2.50 | 79.40 | 22.00 | 0.79 | 63.34 |
| 981 | Teshale×3583 | 80.00 | 0.10 | 9.70 | 4.65 | 117.00 | 4.00 | 70.59 | 18.40 | 0.68 | 50.22 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 982 | Teshale×3583 | 83.50 | 1.50 | 10.00 | 3.10 | 119.50 | 3.00 | 93.38 | 18.70 | 0.76 | 71.72 |
| 983 | Teshale×3583 | 85.50 | 0.30 | 10.80 | 2.45 | 122.50 | 2.50 | 104.38 | 21.75 | 0.80 | 82.60 |
| 984 | Teshale×3583 | 82.00 | 0.20 | 10.54 | 7.67 | 125.00 | 3.00 | 62.28 | 19.00 | 0.78 | 48.13 |
| 985 | Teshale×3583 | 90.00 | 1.40 | 10.00 | 3.20 | 117.00 | 4.00 | 55.00 | 14.28 | 0.67 | 37.06 |
| 986 | Teshale×3583 | 87.50 | 0.10 | 9.70 | 6.70 | 126.50 | 3.00 | 52.70 | 18.01 | 0.78 | 41.36 |
| 987 | Teshale×3583 | 88.50 | 1.64 | 10.04 | 8.58 | 123.50 | 2.50 | 68.35 | 19.11 | 0.74 | 50.34 |
| 988 | Teshale×3583 | 82.00 | 0.20 | 10.10 | 12.90 | 117.50 | 3.50 | 69.82 | 16.64 | 0.81 | 56.66 |
| 989 | Teshale×3583 | 88.00 | 0.85 | 10.35 | 0.75 | 124.00 | 2.50 | 93.54 | 19.50 | 0.76 | 70.59 |
| 990 | Teshale×3583 | 84.00 | 0.00 | 9.60 | 6.70 | 117.00 | 3.50 | 53.00 | 17.20 | 0.74 | 39.56 |
| 991 | Teshale×3583 | 86.00 | 0.67 | 10.00 | 4.67 | 119.00 | 3.00 | 47.25 | 20.36 | 0.78 | 36.75 |
| 992 | Teshale×3583 | 81.00 | 1.60 | 10.40 | 7.00 | 115.00 | 4.00 | 91.40 | 22.20 | 0.85 | 78.51 |
| 993 | Teshale×3583 | 82.00 | 0.40 | 10.30 | 3.00 | 121.50 | 3.50 | 79.00 | 17.92 | 0.75 | 59.10 |
| 994 | Teshale×3583 | 80.00 | 0.60 | 9.80 | 2.40 | 118.00 | 3.00 | 93.60 | 22.33 | 0.78 | 74.01 |
| 995 | Teshale×3583 | 78.00 | 0.20 | 9.30 | 6.90 | 114.50 | 3.50 | 52.95 | 19.54 | 0.70 | 37.33 |
| 996 | Teshale×3583 | 76.50 | 0.30 | 9.68 | 9.88 | 117.50 | 3.50 | 81.07 | 24.55 | 0.80 | 64.72 |
| 997 | Teshale×3583 | 82.00 | 0.70 | 10.03 | 13.00 | 118.50 | 2.50 | 67.95 | 24.59 | 0.82 | 56.14 |
| 998 | Teshale×3583 | 86.00 | 0.75 | 9.38 | 7.00 | 122.00 | 4.00 | 38.33 | 13.62 | 0.69 | 26.62 |
| 999 | Teshale×3583 | 84.50 | 0.80 | 9.60 | 3.10 | 121.50 | 2.50 | 89.95 | 19.95 | 0.80 | 72.18 |
| 1000 | Teshale×3583 | 88.50 | 1.35 | 11.65 | 3.40 | 118.00 | 3.00 | 90.10 | 15.36 | 0.73 | 67.65 |
| 1001 | Teshale×3583 | 88.50 | 0.10 | 10.10 | 4.35 | 123.50 | 3.00 | 65.07 | 19.12 | 0.72 | 47.45 |
| 1002 | Teshale×3583 | 83.00 | 1.13 | 11.55 | 5.20 | 123.50 | 3.00 | 100.10 | 26.02 | 0.80 | 81.63 |
| 1003 | Teshale×3583 | 79.50 | 0.70 | 8.97 | 11.70 | 118.50 | 3.50 | 70.59 | 20.98 | 0.78 | 54.50 |
| 1004 | Teshale×3583 | 82.00 | 0.50 | 9.00 | 7.50 | 129.00 | 1.00 | 92.25 | 22.40 | 0.78 | 73.65 |
| 1005 | Teshale×3583 | 84.50 | 0.00 | 9.40 | 5.30 | 122.00 | 4.00 | 60.55 | 15.08 | 0.75 | 45.09 |
| 1006 | Teshale×3583 | 81.00 | 0.40 | 9.30 | 9.00 | 118.00 | 4.00 | 61.90 | 18.42 | 0.78 | 47.81 |
| 1007 | Teshale×3583 | 93.00 | 0.10 | 10.40 | 1.30 | 124.00 | 3.00 | 31.94 | 13.02 | 0.64 | 21.22 |
| 1008 | Teshale×3583 | 82.50 | 0.63 | 9.48 | 6.43 | 123.00 | 2.50 | 75.60 | 24.57 | 0.79 | 60.24 |
| 1009 | Teshale×3583 | 86.00 | 0.00 | 9.40 | 12.40 | 123.00 | 3.00 | 66.50 | 18.68 | 0.77 | 52.25 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1010 | Teshale×3583 | 85.00 | 0.00 | 9.90 | 2.50 | 125.00 | 3.00 | 108.15 | 22.03 | 0.81 | 86.94 |
| 1011 | Teshale×3583 | 88.00 | 0.00 | 10.20 | 0.00 | 118.00 | 4.00 | 48.00 | 10.40 | 0.50 | 24.00 |
| 1012 | Teshale×3583 | 85.00 | 0.00 | 9.00 | 9.50 | 120.00 | 3.00 | 78.83 | 22.48 | 0.79 | 64.03 |
| 1013 | Teshale×3583 | 90.00 | 1.50 | 8.25 | 9.00 | 129.00 | 1.00 | 81.25 | 20.65 | 0.79 | 64.40 |
| 1014 | Teshale×3583 | 82.50 | 0.13 | 9.75 | 8.88 | 127.50 | 3.00 | 62.68 | 18.97 | 0.79 | 50.21 |
| 1015 | Teshale×3583 | 81.00 | 0.20 | 10.20 | 12.80 | 125.00 | 1.00 | 98.10 | 25.91 | 0.85 | 82.72 |
| 1016 | Teshale×3583 | 91.00 | 0.20 | 9.00 | 1.60 | 123.00 | 4.00 | 58.00 | 16.68 | 0.71 | 41.59 |
| 1017 | Teshale×3583 | 79.50 | 0.93 | 10.30 | 9.80 | 117.00 | 2.00 | 116.05 | 22.54 | 0.76 | 88.32 |
| 1018 | Teshale×3583 | 87.00 | 0.67 | 8.80 | 2.67 | 120.00 | 2.00 | 58.90 | 17.59 | 0.74 | 43.91 |
| 1019 | Teshale×3583 | 90.00 | 0.30 | 10.50 | 4.50 | 122.00 | 2.50 | 88.47 | 16.49 | 0.75 | 67.04 |
| 1020 | Teshale×3583 | 86.00 | 1.00 | 11.10 | 5.00 | 118.50 | 3.50 | 75.95 | 18.08 | 0.73 | 55.99 |
| 1021 | Teshale×3583 | 95.50 | 0.25 | 9.50 | 2.38 | 126.50 | 2.50 | 33.63 | 12.61 | 0.52 | 17.65 |
| 1022 | Teshale×3583 | 86.00 | 0.35 | 9.05 | 14.95 | 121.50 | 2.00 | 65.18 | 19.98 | 0.75 | 49.24 |
| 1023 | Teshale×3583 | 79.00 | 0.60 | 9.14 | 13.50 | 122.00 | 2.50 | 85.15 | 21.99 | 0.80 | 66.64 |
| 1024 | Teshale×3583 | 79.50 | 0.23 | 10.35 | 11.48 | 118.50 | 3.00 | 108.77 | 23.41 | 0.84 | 91.41 |
| 1025 | Teshale×3583 | 88.00 | 0.10 | 9.50 | 7.20 | 123.50 | 2.50 | 68.37 | 22.05 | 0.81 | 55.37 |
| 1026 | Teshale×3583 | 84.00 | 0.50 | 10.50 | 7.80 | 122.50 | 2.00 | 98.88 | 29.05 | 0.79 | 77.75 |
| 1027 | Teshale×3583 | 87.50 | 0.60 | 10.53 | 4.45 | 126.50 | 2.50 | 69.10 | 18.47 | 0.78 | 54.18 |
| 1028 | Teshale×3583 | 86.00 | 0.50 | 9.50 | 0.00 | 126.00 | 3.00 | 52.33 | 1.43 | 0.64 | 34.47 |
| 1029 | Teshale×3583 | 83.50 | 0.20 | 10.90 | 2.30 | 121.00 | 3.50 | 91.00 | 19.90 | 0.77 | 70.15 |
| 1030 | Teshale×3583 | 82.50 | 0.70 | 10.30 | 6.30 | 118.50 | 3.50 | 66.45 | 22.43 | 0.73 | 51.02 |
| 1031 | Teshale×3583 | 84.50 | 0.10 | 9.40 | 8.70 | 124.00 | 3.00 | 84.30 | 19.30 | 0.76 | 63.06 |
| 1032 | Teshale×3583 | 83.50 | 0.60 | 10.40 | 9.50 | 122.50 | 4.00 | 67.49 | 16.14 | 0.75 | 50.82 |
| 1033 | Teshale×3583 | 83.00 | 0.94 | 8.50 | 9.34 | 118.50 | 2.00 | 71.29 | 20.00 | 0.76 | 55.00 |
| 1034 | Teshale×3583 | 87.00 | 0.00 | 10.04 | 4.30 | 124.00 | 2.50 | 70.90 | 19.08 | 0.72 | 52.23 |
| 1035 | Teshale×3583 | 84.00 | 0.50 | 10.30 | 5.50 | 122.00 | 3.00 | 81.25 | 18.56 | 0.73 | 59.99 |
| 1036 | Teshale×3583 | 88.00 | 0.10 | 9.50 | 0.00 | 124.00 | 4.00 | 43.20 | 11.56 | 0.58 | 24.59 |
| 1037 | Teshale×3583 | 85.00 | 0.25 | 7.95 | 10.30 | 123.50 | 2.50 | 81.63 | 19.81 | 0.79 | 63.27 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1038 | Teshale×3583 | 81.00 | 0.40 | 10.40 | 3.80 | 116.00 | 4.00 | 62.30 | 17.16 | 0.75 | 48.02 |
| 1039 | Teshale×3583 | 83.50 | 0.30 | 10.00 | 8.30 | 121.50 | 2.50 | 74.35 | 20.45 | 0.74 | 55.16 |
| 1041 | Teshale×3583 | 84.50 | 2.10 | 10.28 | 0.70 | 124.00 | 3.50 | 81.80 | 21.01 | 0.77 | 61.83 |
| 1042 | Teshale×3583 | 84.00 | 0.60 | 10.45 | 5.55 | 117.00 | 3.00 | 63.70 | 18.48 | 0.71 | 44.70 |
| 1043 | Teshale×3583 | 84.50 | 0.70 | 7.50 | 17.00 | 123.00 | 2.00 | 65.40 | 23.28 | 0.82 | 53.10 |
| 1044 | Teshale×3583 | 91.00 | 2.00 | 10.00 | 13.00 | 129.00 | 2.00 | 78.00 | 18.39 | 0.76 | 60.62 |
| 1045 | Teshale×3583 | 81.00 | 0.40 | 12.20 | 5.40 | 117.00 | 4.00 | 103.10 | 24.75 | 0.81 | 81.59 |
| 1046 | Teshale×3583 | 85.50 | 0.70 | 9.40 | 7.10 | 119.50 | 3.00 | 62.90 | 20.77 | 0.77 | 49.01 |
| 1047 | Teshale×3583 | 82.50 | 0.60 | 8.80 | 4.50 | 122.00 | 3.50 | 80.19 | 17.12 | 0.73 | 63.30 |
| 1048 | Teshale×3583 | 86.00 | 1.00 | 9.00 | 4.00 | 117.00 | 3.00 | 58.50 | 20.00 | 0.79 | 46.95 |
| 1049 | Teshale×3583 | 79.50 | 0.20 | 9.60 | 10.40 | 118.50 | 2.50 | 67.32 | 23.04 | 0.77 | 50.78 |
| 1050 | Teshale×3583 | 82.50 | 0.80 | 10.40 | 7.30 | 116.00 | 4.50 | 81.02 | 20.31 | 0.78 | 63.06 |
| 1051 | Teshale×3583 | 84.50 | 1.14 | 9.50 | 4.77 | 121.00 | 3.00 | 71.10 | 18.49 | 0.79 | 56.37 |
| 1052 | Teshale×3583 | 88.50 | 0.34 | 10.25 | 5.00 | 127.50 | 2.50 | 80.38 | 23.80 | 0.75 | 59.65 |
| 1053 | Teshale×3583 | 86.00 | 0.50 | 9.33 | 10.29 | 126.50 | 1.50 | 80.98 | 21.45 | 0.81 | 67.12 |
| 1054 | Teshale×3583 | 84.00 | 0.70 | 9.60 | 5.20 | 118.50 | 3.00 | 62.65 | 17.85 | 0.67 | 41.55 |
| 1055 | Teshale×3583 | 87.00 | 0.20 | 9.90 | 5.90 | 121.00 | 2.50 | 69.75 | 18.48 | 0.72 | 51.65 |
| 1056 | Teshale×3583 | 80.50 | 1.14 | 10.04 | 5.88 | 121.50 | 2.50 | 117.34 | 23.42 | 0.80 | 94.25 |
| 1057 | Teshale×3583 | 86.00 | 0.00 | 9.75 | 10.85 | 124.00 | 2.00 | 77.50 | 20.97 | 0.72 | 56.59 |
| 1058 | Teshale×3583 | 84.00 | 0.00 | 9.30 | 13.47 | 121.00 | 3.50 | 60.87 | 20.70 | 0.77 | 46.64 |
| 1059 | Teshale×3583 | 84.00 | 0.00 | 8.80 | 10.40 | 120.00 | 3.00 | 62.10 | 19.17 | 0.85 | 51.89 |
| 1060 | Teshale×3583 | 79.00 | 0.20 | 9.60 | 10.00 | 116.00 | 4.00 | 61.40 | 17.18 | 0.80 | 48.66 |
| 1061 | Teshale×3583 | 75.50 | 0.50 | 9.20 | 8.00 | 118.50 | 3.50 | 80.82 | 21.37 | 0.79 | 63.57 |
| 1062 | Teshale×3583 | 72.00 | 1.75 | 9.75 | 1.25 | 113.00 | 5.00 | 74.20 | 19.91 | 0.77 | 56.28 |
| 1063 | Teshale×3583 | 64.50 | 0.80 | 10.33 | 9.25 | 116.00 | 3.00 | 65.10 | 22.42 | 0.79 | 51.40 |
| 1064 | Teshale×3583 | 81.00 | 0.20 | 9.20 | 8.20 | 118.00 | 3.50 | 84.15 | 25.34 | 0.79 | 65.16 |
| 1065 | Teshale×3583 | 88.50 | 1.10 | 8.70 | 5.33 | 127.00 | 2.50 | 54.30 | 20.73 | 0.76 | 41.29 |
| 1066 | Teshale×3583 | 76.00 | 0.80 | 10.40 | 7.20 | 117.50 | 2.50 | 84.15 | 27.81 | 0.82 | 68.64 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1067 | Teshale×3583 | 87.00 | 0.34 | 9.64 | 8.24 | 123.00 | 3.50 | 66.68 | 20.11 | 0.69 | 45.93 |
| 1068 | Teshale×3583 | 85.00 | 0.13 | 9.04 | 9.71 | 121.00 | 3.50 | 52.62 | 16.27 | 0.63 | 33.36 |
| 1069 | Teshale×3583 | 85.50 | 0.34 | 9.00 | 10.34 | 127.00 | 3.00 | 66.00 | 18.93 | 0.73 | 48.36 |
| 1070 | Teshale×3583 | 86.50 | 0.00 | 9.30 | 5.60 | 123.00 | 3.00 | 49.68 | 16.41 | 0.66 | 32.89 |
| 1071 | Teshale×3583 | 87.50 | 0.30 | 10.20 | 3.00 | 126.00 | 2.50 | 71.85 | 18.13 | 0.71 | 52.00 |
| 1072 | Teshale×3583 | 91.50 | 0.10 | 10.38 | 4.45 | 125.00 | 3.50 | 48.87 | 14.75 | 0.69 | 34.09 |
| 1073 | Teshale×3583 | 86.50 | 0.80 | 10.30 | 2.80 | 122.00 | 3.00 | 65.67 | 18.74 | 0.75 | 49.70 |
| 1074 | Teshale×3583 | 79.50 | 0.30 | 9.90 | 6.50 | 122.50 | 3.00 | 81.19 | 20.76 | 0.77 | 61.86 |
| 1075 | Teshale×3583 | 85.50 | 0.27 | 8.63 | 9.47 | 127.00 | 2.00 | 95.60 | 24.07 | 0.81 | 76.84 |
| 1076 | Teshale×3583 | 91.50 | 0.00 | 10.60 | 4.00 | 125.50 | 3.00 | 62.40 | 16.63 | 0.76 | 47.40 |
| 1077 | Teshale×3583 | 93.00 | 1.50 | 9.25 | 5.00 | 127.50 | 1.00 | 64.50 | 19.61 | 0.64 | 44.60 |
| 1078 | Teshale×3583 | 87.50 | 0.50 | 9.45 | 7.25 | 127.00 | 2.00 | 70.20 | 19.71 | 0.76 | 54.02 |
| 1079 | Teshale×3583 | 85.00 | 0.80 | 10.20 | 14.60 | 129.00 | 2.00 | 102.88 | 22.74 | 0.82 | 83.42 |
| 1080 | Teshale×3583 | 91.00 | 0.00 | 11.00 | 0.00 | 119.00 | 4.00 | 80.50 | 10.72 | 0.62 | 50.11 |
| 1081 | Teshale×3583 | 87.50 | 0.13 | 10.65 | 3.03 | 122.00 | 3.00 | 62.72 | 16.62 | 0.73 | 45.54 |
| 1082 | Teshale×3583 | 82.00 | 0.40 | 11.60 | 1.50 | 118.50 | 3.00 | 99.70 | 20.68 | 0.73 | 76.58 |
| 1083 | Teshale×3583 | 89.00 | 0.50 | 9.70 | 2.60 | 119.50 | 3.50 | 40.90 | 12.92 | 0.54 | 25.14 |
| 1084 | Teshale×3583 | 91.50 | 1.30 | 10.40 | 0.00 | 127.00 | 2.00 | 57.35 | 15.19 | 0.51 | 27.28 |
| 1085 | Teshale×3583 | 90.00 | 1.00 | 12.00 | 0.00 | 126.00 | 2.00 | 80.70 | 19.44 | 0.78 | 63.39 |
| 1086 | Teshale×3583 | 82.50 | 0.20 | 10.30 | 3.20 | 122.00 | 2.50 | 84.28 | 18.34 | 0.67 | 60.65 |
| 1087 | Teshale×3583 | 85.00 | 0.00 | 9.20 | 1.70 | 118.50 | 2.50 | 70.19 | 18.58 | 0.80 | 55.96 |
| 1088 | Teshale×3583 | 86.00 | 0.00 | 9.00 | 8.00 | 133.00 | 1.00 | 133.00 | 30.04 | 0.85 | 110.93 |
| 1089 | Teshale×3583 | 85.00 | 0.00 | 10.40 | 6.60 | 127.00 | 2.00 | 147.00 | 23.59 | 0.83 | 119.91 |
| 1090 | Teshale×3583 | 87.50 | 0.27 | 10.20 | 6.87 | 124.50 | 3.00 | 90.50 | 15.96 | 0.73 | 67.09 |
| 1091 | Teshale×3583 | 91.00 | 0.25 | 10.25 | 4.25 | 127.00 | 3.00 | 118.75 | 20.06 | 0.82 | 96.33 |
| 1092 | Teshale×3583 | 79.50 | 0.90 | 10.80 | 10.70 | 117.50 | 3.00 | 104.35 | 25.38 | 0.81 | 83.59 |
| 1093 | Teshale×3583 | 81.00 | 1.00 | 12.00 | 4.40 | 119.00 | 4.00 | 62.10 | 19.81 | 0.81 | 49.22 |
| 1094 | Teshale×3583 | 86.00 | 0.90 | 10.50 | 7.60 | 126.00 | 3.00 | 97.05 | 24.05 | 0.82 | 79.81 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1095 | Teshale×3583 | 86.00 | 0.40 | 10.40 | 5.40 | 125.00 | 4.00 | 97.50 | 23.07 | 0.77 | 76.68 |
| 1096 | Teshale×3583 | 90.50 | 0.10 | 9.50 | 5.40 | 126.00 | 2.50 | 71.40 | 22.64 | 0.83 | 58.80 |
| 1097 | Teshale×3583 | 86.00 | 0.13 | 10.38 | 7.38 | 125.00 | 3.00 | 78.19 | 17.07 | 0.72 | 54.90 |
| 1098 | Teshale×3583 | 83.50 | 0.10 | 10.00 | 7.40 | 122.00 | 3.00 | 88.35 | 21.46 | 0.80 | 70.90 |
| 1099 | Teshale×3583 | 87.50 | 0.00 | 10.30 | 4.50 | 125.00 | 4.00 | 46.27 | 13.40 | 0.62 | 28.98 |
| 1100 | Teshale×3583 | 85.00 | 0.70 | 9.95 | 3.35 | 121.00 | 4.00 | 91.27 | 22.42 | 0.76 | 70.56 |
| 1102 | Teshale×3583 | 84.50 | 0.50 | 9.00 | 4.50 | 120.50 | 1.50 | 71.88 | 19.65 | 0.74 | 52.71 |
| 1103 | Teshale×3583 | 86.00 | 1.20 | 10.08 | 4.50 | 118.50 | 3.00 | 77.27 | 17.74 | 0.69 | 52.66 |
| 1104 | Teshale×3583 | 91.00 | 1.00 | 9.67 | 2.33 | 125.00 | 3.00 | 76.50 | 25.63 | 0.83 | 64.59 |
| 1105 | Teshale×3583 | 81.00 | 1.50 | 9.50 | 21.50 | 126.00 | 3.00 | 195.00 | 30.58 | 0.27 | 51.47 |
| 1107 | Teshale×3583 | 91.00 | 0.63 | 11.63 | 2.00 | 122.50 | 2.00 | 108.35 | 18.67 | 0.66 | 74.69 |
| 1108 | Teshale×3583 | 88.50 | 0.00 | 9.30 | 1.90 | 123.50 | 2.50 | 72.80 | 19.07 | 0.72 | 52.83 |
| 1109 | Teshale×9911 | 89.00 | 0.50 | 10.10 | 4.60 | 126.50 | 2.00 | 76.12 | 16.96 | 0.77 | 58.23 |
| 1110 | Teshale×9911 | 87.50 | 0.00 | 10.48 | 2.65 | 125.00 | 4.00 | 58.00 | 13.41 | 0.66 | 38.03 |
| 1111 | Teshale×9911 | 90.50 | 1.80 | 11.90 | 0.30 | 123.00 | 2.00 | 61.88 | 18.25 | 0.75 | 46.22 |
| 1112 | Teshale×9911 | 86.00 | 0.10 | 9.00 | 2.10 | 119.50 | 3.50 | 45.60 | 12.87 | 0.64 | 29.02 |
| 1113 | Teshale×9911 | 86.50 | 0.60 | 10.90 | 6.70 | 126.00 | 3.00 | 94.85 | 17.33 | 0.47 | 39.43 |
| 1114 | Teshale×9911 | 88.00 | 0.50 | 10.97 | 7.10 | 127.00 | 1.50 | 67.10 | 21.42 | 0.77 | 51.07 |
| 1115 | Teshale×9911 | 91.00 | 0.00 | 10.74 | 2.00 | 123.50 | 2.50 | 81.63 | 19.06 | 0.71 | 58.94 |
| 1116 | Teshale×9911 | 81.00 | 0.30 | 10.75 | 4.08 | 117.50 | 2.50 | 88.52 | 23.11 | 0.77 | 68.96 |
| 1117 | Teshale×9911 | 81.50 | 1.00 | 10.67 | 7.00 | 119.50 | 3.00 | 80.13 | 20.60 | 0.75 | 59.63 |
| 1118 | Teshale×9911 | 86.50 | 0.10 | 9.70 | 4.90 | 122.50 | 3.00 | 47.00 | 14.95 | 0.70 | 33.30 |
| 1119 | Teshale×9911 | 90.50 | 0.20 | 11.00 | 3.80 | 129.00 | 2.00 | 77.20 | 22.78 | 0.68 | 55.34 |
| 1120 | Teshale×9911 | 81.00 | 0.40 | 10.20 | 6.00 | 118.50 | 2.50 | 58.30 | 26.89 | 0.77 | 51.97 |
| 1121 | Teshale×9911 | 90.00 | 0.45 | 10.60 | 4.40 | 126.50 | 2.50 | 84.32 | 18.39 | 0.80 | 66.22 |
| 1122 | Teshale×9911 | 91.00 | 1.60 | 11.13 | 1.00 | 126.00 | 3.00 | 72.05 | 17.97 | 0.76 | 54.43 |
| 1123 | Teshale×9911 | 82.00 | 0.40 | 10.90 | 3.80 | 117.00 | 2.00 | 105.15 | 21.86 | 0.82 | 86.48 |
| 1124 | Teshale×9911 | 92.50 | 0.70 | 10.10 | 0.34 | 125.50 | 2.00 | 56.00 | 17.09 | 0.71 | 40.06 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1125 | Teshale×9911 | 81.00 | 1.20 | 11.40 | 6.90 | 117.50 | 3.00 | 88.95 | 20.36 | 0.78 | 69.56 |
| 1126 | Teshale×9911 | 92.50 | 0.00 | 10.70 | 2.50 | 127.00 | 2.50 | 74.65 | 16.42 | 0.58 | 41.87 |
| 1127 | Teshale×9911 | 84.00 | 0.60 | 10.40 | 0.00 | 120.00 | 4.00 | 69.30 | 13.75 | 0.68 | 45.62 |
| 1128 | Teshale×9911 | 91.50 | 0.20 | 9.30 | 4.20 | 128.00 | 2.00 | 61.35 | 16.81 | 0.74 | 45.62 |
| 1129 | Teshale×9911 | 79.50 | 1.10 | 10.60 | 6.05 | 119.50 | 3.50 | 92.05 | 23.33 | 0.78 | 72.00 |
| 1130 | Teshale×9911 | 92.00 | 0.17 | 10.44 | 0.67 | 124.50 | 3.00 | 57.15 | 14.60 | 0.69 | 39.79 |
| 1131 | Teshale×9911 | 94.50 | 0.80 | 12.30 | 2.50 | 130.50 | 2.00 | 86.40 | 16.21 | 0.69 | 61.32 |
| 1132 | Teshale×9911 | 95.00 | 0.00 | 10.20 | 5.40 | 124.00 | 2.50 | 100.88 | 21.29 | 0.69 | 73.29 |
| 1133 | Teshale×9911 | 88.00 | 2.50 | 10.80 | 5.80 | 123.00 | 2.50 | 60.75 | 19.75 | 0.72 | 44.64 |
| 1134 | Teshale×9911 | 86.00 | 0.20 | 9.80 | 6.40 | 124.50 | 3.00 | 91.05 | 20.27 | 0.79 | 71.74 |
| 1135 | Teshale×9911 | 81.00 | 1.00 | 10.40 | 6.00 | 118.00 | 4.00 | 80.80 | 19.17 | 0.82 | 66.60 |
| 1136 | Teshale×9911 | 83.00 | 0.10 | 9.60 | 2.20 | 123.50 | 2.00 | 110.13 | 24.50 | 0.73 | 81.09 |
| 1137 | Teshale×9911 | 85.00 | 0.40 | 10.80 | 0.80 | 123.00 | 3.00 | 101.60 | 19.81 | 0.80 | 79.43 |
| 1138 | Teshale×9911 | 95.50 | 0.40 | 12.30 | 0.00 | 132.00 | 2.50 | 59.03 | 15.76 | 0.62 | 37.16 |
| 1139 | Teshale×9911 | 85.00 | 0.85 | 9.65 | 5.45 | 121.50 | 2.50 | 69.13 | 21.58 | 0.80 | 55.58 |
| 1140 | Teshale×9911 | 88.00 | 0.34 | 9.50 | 3.50 | 124.00 | 3.50 | 74.63 | 18.10 | 0.73 | 56.97 |
| 1141 | Teshale×9911 | 89.00 | 0.20 | 9.60 | 10.60 | 127.00 | 4.00 | 87.63 | 24.60 | 0.79 | 69.00 |
| 1142 | Teshale×9911 | 84.50 | 0.20 | 10.30 | 4.80 | 123.00 | 2.50 | 91.95 | 20.44 | 0.78 | 70.57 |
| 1143 | Teshale×9911 | 84.50 | 0.30 | 10.70 | 4.70 | 121.50 | 3.50 | 93.80 | 21.12 | 0.75 | 70.66 |
| 1144 | Teshale×9911 | 89.00 | 0.60 | 11.00 | 0.00 | 123.00 | 4.00 | 40.20 | 11.40 | 0.64 | 26.30 |
| 1145 | Teshale×9911 | 85.00 | 0.10 | 9.70 | 9.45 | 118.50 | 2.00 | 70.25 | 22.66 | 0.78 | 55.29 |
| 1146 | Teshale×9911 | 83.50 | 0.30 | 9.90 | 11.10 | 121.50 | 2.00 | 80.45 | 20.80 | 0.81 | 65.09 |
| 1147 | Teshale×9911 | 85.00 | 0.00 | 11.40 | 8.40 | 125.00 | 3.00 | 58.10 | 15.30 | 0.69 | 40.48 |
| 1148 | Teshale×9911 | 84.50 | 0.40 | 10.10 | 4.00 | 119.50 | 2.50 | 60.65 | 18.86 | 0.61 | 40.11 |
| 1149 | Teshale×9911 | 86.50 | 0.00 | 9.10 | 6.20 | 127.00 | 2.50 | 61.82 | 15.36 | 0.70 | 42.54 |
| 1150 | Teshale×9911 | 95.50 | 0.00 | 12.45 | 1.10 | 128.00 | 3.00 | 52.15 | 14.69 | 0.60 | 34.03 |
| 1151 | Teshale×9911 | 97.00 | 0.50 | 9.75 | 5.00 | 127.50 | 1.50 | 62.63 | 17.09 | 0.83 | 50.02 |
| 1152 | Teshale×9911 | 79.50 | 0.40 | 10.40 | 4.90 | 117.00 | 3.00 | 65.80 | 17.96 | 0.76 | 56.29 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1153 | Teshale×9911 | 84.50 | 0.34 | 9.14 | 5.07 | 118.50 | 3.00 | 71.79 | 21.95 | 0.69 | 52.17 |
| 1154 | Teshale×9911 | 90.00 | 0.38 | 9.50 | 4.50 | 124.50 | 1.50 | 67.44 | 19.74 | 0.78 | 52.48 |
| 1155 | Teshale×9911 | 85.50 | 3.63 | 9.63 | 3.75 | 126.50 | 2.00 | 94.45 | 22.46 | 0.82 | 76.57 |
| 1157 | Teshale×9911 | 82.00 | 0.20 | 9.90 | 10.60 | 121.00 | 2.00 | 67.15 | 22.02 | 0.80 | 53.73 |
| 1159 | Teshale×9911 | 86.00 | 0.00 | 10.38 | 10.50 | 127.00 | 2.00 | 133.10 | 27.72 | 0.77 | 102.44 |
| 1160 | Teshale×9911 | 92.00 | 0.73 | 10.80 | 7.95 | 127.50 | 3.00 | 63.32 | 17.05 | 0.64 | 41.54 |
| 1161 | Teshale×9911 | 88.00 | 0.00 | 10.75 | 1.00 | 120.00 | 2.50 | 19.40 | 26.82 | 0.70 | 13.82 |
| 1162 | Teshale×9911 | 85.00 | 0.50 | 9.70 | 4.50 | 118.50 | 3.00 | 70.68 | 18.95 | 0.71 | 50.53 |
| 1163 | Teshale×9911 | 86.00 | 0.50 | 10.40 | 2.60 | 122.50 | 3.50 | 92.63 | 21.86 | 0.82 | 76.12 |
| 1164 | Teshale×9911 | 88.00 | 0.50 | 10.70 | 7.37 | 119.50 | 2.50 | 86.14 | 14.18 | 0.68 | 61.19 |
| 1165 | Teshale×9911 | 87.00 | 0.20 | 9.75 | 2.70 | 126.00 | 3.00 | 98.63 | 23.90 | 0.78 | 76.58 |
| 1166 | Teshale×9911 | 86.50 | 0.17 | 9.40 | 7.92 | 126.00 | 1.00 | 64.20 | 18.50 | 0.75 | 48.74 |
| 1167 | Teshale×9911 | 85.00 | 0.00 | 8.00 | 1.47 | 129.00 | 3.00 | 42.00 | 21.82 | 0.77 | 32.98 |
| 1168 | Teshale×9911 | 85.00 | 0.00 | 10.00 | 12.50 | 127.50 | 3.00 | 39.78 | 19.00 | 0.35 | 23.32 |
| 1169 | Teshale×9911 | 84.50 | 0.30 | 9.40 | 10.40 | 123.00 | 2.50 | 105.03 | 22.57 | 0.82 | 86.02 |
| 1170 | Teshale×9911 | 83.50 | 0.80 | 9.33 | 14.60 | 123.00 | 2.00 | 87.32 | 22.32 | 0.79 | 68.84 |
| 1171 | Teshale×9911 | 79.00 | 0.00 | 9.50 | 3.13 | 117.00 | 3.50 | 63.30 | 17.07 | 0.73 | 47.00 |
| 1172 | Teshale×9911 | 79.00 | 0.50 | 12.60 | 3.10 | 123.00 | 3.00 | 89.20 | 24.59 | 0.79 | 69.51 |
| 1173 | Teshale×9911 | 95.00 | 1.60 | 10.10 | 8.80 | 127.00 | 2.00 | 60.55 | 13.43 | 0.69 | 42.30 |
| 1174 | Teshale×9911 | 84.50 | 0.30 | 10.50 | 0.00 | 124.00 | 3.00 | 51.18 | 18.19 | 0.82 | 41.64 |
| 1175 | Teshale×9911 | 82.00 | 0.80 | 9.30 | 15.80 | 119.50 | 3.50 | 60.70 | 18.58 | 0.76 | 48.27 |
| 1176 | Teshale×9911 | 79.50 | 0.20 | 10.80 | 8.78 | 119.50 | 2.50 | 71.50 | 22.23 | 0.78 | 56.11 |
| 1177 | Teshale×9911 | 84.00 | 0.50 | 10.20 | 3.10 | 119.00 | 3.00 | 78.80 | 17.08 | 0.76 | 60.07 |
| 1178 | Teshale×9911 | 83.50 | 0.60 | 10.70 | 6.80 | 128.00 | 3.00 | 69.15 | 20.85 | 0.72 | 53.48 |
| 1179 | Teshale×9911 | 88.00 | 0.60 | 10.48 | 5.30 | 123.50 | 2.00 | 67.04 | 17.81 | 0.75 | 49.45 |
| 1180 | Teshale×9911 | 83.50 | 0.48 | 10.50 | 1.80 | 119.50 | 3.00 | 103.14 | 15.88 | 0.78 | 80.11 |
| 1181 | Teshale×9911 | 88.50 | 0.00 | 9.90 | 3.84 | 123.50 | 3.00 | 49.50 | 14.47 | 0.68 | 33.35 |
| 1182 | Teshale×9911 | 95.00 | 0.10 | 9.50 | 0.75 | 128.00 | 3.50 | 43.34 | 18.32 | 0.73 | 31.42 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1183 | Teshale×9911 | 91.00 | 2.00 | 10.10 | 0.00 | 128.00 | 1.00 | 69.35 | 17.10 | 0.71 | 49.44 |
| 1184 | Teshale×9911 | 83.50 | 0.00 | 8.40 | 3.60 | 126.00 | 2.50 | 61.90 | 21.13 | 0.76 | 47.06 |
| 1185 | Teshale×9911 | 97.50 | 0.40 | 12.40 | 14.00 | 131.50 | 2.50 | 61.59 | 15.58 | 0.64 | 39.30 |
| 1186 | Teshale×9911 | 90.00 | 0.00 | 10.10 | 1.10 | 123.00 | 2.50 | 58.85 | 15.54 | 0.76 | 43.07 |
| 1187 | Teshale×9911 | 91.00 | 0.00 | 10.43 | 0.20 | 127.00 | 3.50 | 82.85 | 17.17 | 0.70 | 59.34 |
| 1188 | Teshale×9911 | 91.50 | 0.13 | 12.14 | 1.10 | 127.00 | 2.00 | 84.94 | 16.52 | 0.64 | 54.49 |
| 1189 | Teshale×9911 | 88.50 | 0.20 | 9.70 | 0.70 | 123.50 | 3.00 | 71.57 | 20.50 | 0.67 | 47.21 |
| 1190 | Teshale×9911 | 95.00 | 1.10 | 12.00 | 2.60 | 120.00 | 3.00 | 133.30 | 20.39 | 0.79 | 103.83 |
| 1191 | Teshale×9911 | 82.00 | 1.20 | 14.00 | 5.60 | 126.00 | 2.00 | 60.67 | 13.52 | 0.62 | 38.57 |
| 1192 | Teshale×9911 | 84.50 | 0.00 | 10.20 | 0.00 | 122.50 | 4.00 | 59.42 | 18.99 | 0.76 | 45.90 |
| 1193 | Teshale×9911 | 79.50 | 0.30 | 10.03 | 9.40 | 119.00 | 4.00 | 88.50 | 19.97 | 0.70 | 62.90 |
| 1194 | Teshale×9911 | 84.00 | 0.75 | 11.27 | 4.35 | 122.50 | 2.50 | 74.70 | 22.11 | 0.80 | 59.14 |
| 1195 | Teshale×9911 | 87.00 | 1.20 | 10.40 | 6.27 | 124.50 | 2.50 | 80.32 | 18.13 | 0.77 | 60.79 |
| 1196 | Teshale×9911 | 95.00 | 0.30 | 11.34 | 8.70 | 132.00 | 3.50 | 57.19 | 14.32 | 0.63 | 37.21 |
| 1197 | Teshale×9911 | 83.50 | 0.50 | 10.20 | 0.00 | 119.50 | 3.00 | 59.85 | 19.74 | 0.75 | 45.71 |
| 1200 | Teshale×9911 | 90.00 | 0.00 | 11.50 | 3.95 | 129.00 | 2.50 | 132.50 | 26.01 | 0.87 | 116.42 |
| 1201 | Teshale×9911 | 85.00 | 1.00 | 10.00 | 8.00 | 119.00 | 2.00 | 93.13 | 26.11 | 0.82 | 78.34 |
| 1203 | Teshale×9911 | 90.50 | 3.00 | 10.25 | 2.00 | 126.00 | 1.00 | 100.13 | 20.74 | 0.75 | 75.34 |
| 1207 | Teshale×9911 | 85.50 | 0.34 | 9.30 | 0.00 | 123.00 | 3.50 | 67.70 | 20.11 | 0.81 | 54.27 |
| 1208 | Teshale×9911 | 91.00 | 0.00 | 10.10 | 9.60 | 126.50 | 1.50 | 78.55 | 15.89 | 0.70 | 55.48 |
| 1209 | Teshale×23988 | 90.50 | 0.30 | 10.00 | 0.50 | 126.00 | 3.00 | 52.38 | 15.72 | 0.68 | 34.83 |
| 1210 | Teshale×23988 | 84.50 | 0.50 | 9.85 | 4.75 | 122.50 | 2.50 | 70.15 | 19.81 | 0.77 | 53.74 |
| 1211 | Teshale×23988 | 86.50 | 1.70 | 10.50 | 8.80 | 121.50 | 3.00 | 62.92 | 23.06 | 0.66 | 42.60 |
| 1212 | Teshale×23988 | 83.50 | 0.00 | 10.70 | 15.34 | 119.50 | 2.50 | 90.85 | 20.94 | 0.79 | 70.39 |
| 1213 | Teshale×23988 | 88.50 | 0.30 | 10.48 | 5.70 | 127.00 | 3.00 | 84.80 | 20.36 | 0.79 | 68.59 |
| 1215 | Teshale×23988 | 82.00 | 0.13 | 9.40 | 12.10 | 119.50 | 2.00 | 51.20 | 20.43 | 0.74 | 37.92 |
| 1216 | Teshale×23988 | 85.00 | 0.70 | 9.67 | 8.40 | 119.50 | 3.00 | 86.54 | 16.86 | 0.76 | 65.78 |
| 1217 | Teshale×23988 | 85.50 | 0.50 | 10.50 | 8.67 | 118.50 | 3.00 | 67.90 | 16.87 | 0.75 | 50.92 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1218 | Teshale×23988 | 84.00 | 0.20 | 10.50 | 2.00 | 124.00 | 3.00 | 92.54 | 17.62 | 0.77 | 70.65 |
| 1219 | Teshale×23988 | 87.50 | 0.63 | 9.10 | 1.46 | 124.00 | 3.50 | 95.43 | 19.83 | 0.77 | 72.27 |
| 1221 | Teshale×23988 | 82.50 | 0.30 | 9.20 | 4.20 | 120.00 | 3.00 | 64.10 | 24.39 | 0.79 | 49.89 |
| 1223 | Teshale×23988 | 80.00 | 0.00 | 11.10 | 20.00 | 118.50 | 3.50 | 72.95 | 20.98 | 0.64 | 48.95 |
| 1224 | Teshale×23988 | 91.00 | 0.80 | 11.50 | 3.40 | 119.00 | 3.00 | 87.75 | 23.31 | 0.75 | 66.30 |
| 1225 | Teshale×23988 | 81.00 | 0.00 | 11.00 | 12.50 | 125.00 | 4.00 | 95.63 | 26.80 | 0.80 | 78.25 |
| 1226 | Teshale×23988 | 91.00 | 0.00 | 9.00 | 4.25 | 128.00 | 1.00 | 30.25 | 14.38 | 0.43 | 12.81 |
| 1227 | Teshale×23988 | 80.50 | 0.00 | 9.30 | 7.50 | 117.00 | 1.00 | 61.75 | 19.60 | 0.69 | 42.11 |
| 1229 | Teshale×23988 | 92.00 | 0.00 | 11.50 | 6.00 | 132.00 | 4.00 | 48.00 | 15.03 | 0.73 | 34.60 |
| 1230 | Teshale×23988 | 78.00 | 0.00 | 8.50 | 4.00 | 124.00 | 1.00 | 97.50 | 22.00 | 0.79 | 74.83 |
| 1231 | Teshale×23988 | 83.50 | 0.90 | 10.20 | 15.60 | 123.00 | 3.00 | 78.57 | 16.49 | 0.78 | 59.91 |
| 1232 | Teshale×23988 | 98.00 | 0.40 | 10.75 | 3.20 | 132.00 | 2.50 | 21.17 | 18.00 | 0.49 | 10.57 |
| 1233 | Teshale×23988 | 83.50 | 0.00 | 9.50 | 1.33 | 124.00 | 3.00 | 87.85 | 22.83 | 0.75 | 66.18 |
| 1234 | Teshale×23988 | 87.00 | 0.00 | 11.50 | 6.60 | 127.00 | 1.50 | 63.50 | 17.06 | 0.80 | 49.72 |
| 1235 | Teshale×23988 | 85.50 | 0.50 | 10.88 | 6.00 | 122.00 | 3.00 | 65.47 | 14.35 | 0.74 | 49.79 |
| 1236 | Teshale×23988 | 86.00 | 0.00 | 10.45 | 3.75 | 121.50 | 3.50 | 89.05 | 20.17 | 0.77 | 67.83 |
| 1237 | Teshale×23988 | 82.50 | 0.45 | 10.13 | 1.10 | 116.00 | 3.00 | 71.94 | 22.16 | 0.74 | 52.92 |
| 1238 | Teshale×23988 | 83.00 | 0.13 | 10.00 | 7.15 | 117.50 | 3.00 | 77.38 | 21.45 | 0.83 | 62.73 |
| 1239 | Teshale×23988 | 79.00 | 0.67 | 12.00 | 9.63 | 120.00 | 3.00 | 71.00 | 24.45 | 0.85 | 59.38 |
| 1240 | Teshale×23988 | 78.00 | 3.00 | 8.80 | 20.00 | 120.00 | 2.00 | 66.00 | 21.08 | 0.84 | 53.56 |
| 1241 | Teshale×23988 | 86.00 | 0.00 | 10.00 | 22.60 | 127.00 | 3.00 | 79.50 | 23.10 | 0.75 | 59.67 |
| 1242 | Teshale×23988 | 85.50 | 0.33 | 9.60 | 3.67 | 119.50 | 2.00 | 69.33 | 19.96 | 0.83 | 55.86 |
| 1243 | Teshale×23988 | 82.00 | 0.30 | 11.10 | 17.20 | 121.50 | 2.50 | 106.57 | 22.11 | 0.79 | 84.40 |
| 1244 | Teshale×23988 | 90.00 | 0.40 | 9.00 | 7.70 | 126.00 | 3.50 | 114.25 | 24.22 | 0.79 | 88.97 |
| 1245 | Teshale×23988 | 78.00 | 0.00 | 10.20 | 7.50 | 115.00 | 1.00 | 85.40 | 22.39 | 0.78 | 65.99 |
| 1246 | Teshale×23988 | 83.00 | 2.00 | 7.50 | 6.20 | 123.00 | 3.00 | 63.50 | 18.89 | 0.83 | 50.82 |
| 1247 | Teshale×23988 | 80.00 | 1.00 | 9.70 | 16.50 | 117.00 | 2.00 | 70.00 | 22.40 | 0.84 | 58.85 |
| 1248 | Teshale×23988 | 86.00 | 0.50 | 10.00 | 17.00 | 117.00 | 2.00 | 59.00 | 15.72 | 0.73 | 41.72 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1249 | Teshale×23988 | 81.00 | 0.00 | 8.97 | 4.00 | 121.50 | 2.00 | 57.57 | 16.77 | 0.68 | 39.83 |
| 1250 | Teshale×23988 | 93.00 | 0.00 | 11.50 | 11.44 | 127.00 | 4.50 | 105.75 | 20.64 | 0.66 | 72.85 |
| 1251 | Teshale×23988 | 90.50 | 2.00 | 9.88 | 2.00 | 125.00 | 1.50 | 67.82 | 16.29 | 0.77 | 51.25 |
| 1252 | Teshale×23988 | 84.50 | 0.00 | 10.00 | 3.25 | 118.50 | 2.50 | 55.55 | 21.58 | 0.80 | 45.52 |
| 1253 | Teshale×23988 | 89.50 | 0.50 | 7.57 | 3.50 | 128.00 | 3.00 | 92.35 | 23.49 | 0.77 | 70.42 |
| 1254 | Teshale×23988 | 78.00 | 1.00 | 10.50 | 7.60 | 123.00 | 1.00 | 97.00 | 30.50 | 0.83 | 80.25 |
| 1261 | Teshale×23988 | 90.00 | 1.00 | 9.50 | 17.00 | 123.00 | 2.00 | 94.38 | 18.16 | 0.67 | 66.50 |
| 1262 | Teshale×23988 | 86.00 | 1.50 | 11.00 | 2.10 | 128.00 | 2.00 | 103.00 | 31.18 | 0.88 | 90.06 |
| 1264 | Teshale×23988 | 86.00 | 1.00 | 10.00 | 4.00 | 123.00 | 3.00 | 55.15 | 17.36 | 0.69 | 37.89 |
| 1265 | Teshale×23988 | 84.50 | 0.63 | 10.13 | 1.00 | 124.00 | 2.50 | 89.75 | 20.10 | 0.84 | 74.58 |
| 1269 | Teshale×23988 | 82.50 | 0.43 | 11.25 | 4.38 | 121.00 | 4.00 | 66.46 | 25.51 | 0.78 | 52.83 |
| 1270 | Teshale×23988 | 100.00 | 1.00 | 11.34 | 8.88 | 127.00 | 3.00 | 41.25 | 14.07 | 0.48 | 20.20 |
| 1271 | Teshale×23988 | 88.50 | 1.00 | 10.00 | 0.84 | 122.50 | 2.00 | 77.57 | 16.44 | 0.79 | 60.98 |
| 1272 | Teshale×23988 | 88.50 | 0.50 | 9.88 | 3.25 | 127.50 | 3.00 | 50.98 | 19.99 | 0.63 | 31.74 |
| 1273 | Teshale×23988 | 88.00 | 0.13 | 9.50 | 4.80 | 119.50 | 3.50 | 76.20 | 16.34 | 0.74 | 57.11 |
| 1275 | Teshale×23988 | 86.00 | 0.10 | 11.00 | 1.60 | 125.00 | 4.00 | 107.25 | 19.69 | 0.73 | 76.89 |
| 1276 | Teshale×23988 | 91.00 | 0.00 | 12.20 | 6.50 | 125.00 | 3.00 | 112.90 | 23.76 | 0.80 | 93.19 |
| 1277 | Teshale×23988 | 98.00 | 0.60 | 13.00 | 2.60 | 137.00 | 2.00 | 73.00 | 29.48 | 0.89 | 63.66 |
| 1278 | Teshale×23988 | 98.00 | 2.00 | 11.00 | 0.00 | 132.00 | 2.00 | 42.00 | 24.51 | 0.24 | 10.17 |
| 1279 | Teshale×23988 | 95.00 | 2.00 | 10.00 | 1.00 | 127.00 | 1.00 | 78.00 | 17.43 | 0.73 | 58.11 |
| 1280 | Teshale×23988 | 86.00 | 0.00 | 7.00 | 0.00 | 125.00 | 2.00 | 68.50 | 31.62 | 0.86 | 58.12 |
| 1281 | Teshale×23988 | 91.00 | 0.00 | 9.00 | 7.00 | 123.00 | 4.00 | 41.00 | 15.99 | 0.63 | 26.48 |
| 1282 | Teshale×23988 | 84.00 | 0.00 | 10.20 | 4.00 | 118.00 | 3.00 | 79.40 | 17.45 | 0.71 | 57.36 |
| 1283 | Teshale×23988 | 86.50 | 0.20 | 10.00 | 2.00 | 119.50 | 3.00 | 69.70 | 19.02 | 0.74 | 53.51 |
| 1284 | Teshale×23988 | 85.00 | 0.20 | 9.13 | 2.50 | 121.00 | 2.00 | 63.32 | 19.41 | 0.75 | 47.34 |
| 1285 | Teshale×23988 | 85.00 | 0.53 | 9.00 | 4.15 | 118.50 | 3.00 | 63.17 | 19.32 | 0.68 | 45.39 |
| 1286 | Teshale×23988 | 82.50 | 0.63 | 9.30 | 5.88 | 122.50 | 3.50 | 51.74 | 18.44 | 0.68 | 35.33 |
| 1287 | Teshale×2205 | 85.00 | 0.00 | 10.10 | 9.80 | 124.00 | 3.00 | 54.60 | 15.79 | 0.74 | 40.31 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1288 | Teshale×2205 | 100.00 | 0.00 | 13.00 | 3.80 | 129.00 | 2.50 | 71.25 | 19.57 | 0.84 | 58.82 |
| 1289 | Teshale×2205 | 83.50 | 2.00 | 9.34 | 4.00 | 123.00 | 2.00 | 42.35 | 22.31 | 0.73 | 30.89 |
| 1290 | Teshale×2205 | 92.50 | 0.00 | 11.07 | 4.17 | 124.00 | 2.00 | 61.75 | 15.11 | 0.76 | 46.42 |
| 1291 | Teshale×2205 | 80.50 | 0.00 | 10.70 | 12.00 | 118.50 | 3.00 | 73.75 | 19.57 | 0.77 | 56.88 |
| 1292 | Teshale×2205 | 79.50 | 0.30 | 10.70 | 10.97 | 119.50 | 3.00 | 74.85 | 24.70 | 0.79 | 58.97 |
| 1293 | Teshale×2205 | 86.00 | 0.60 | 8.80 | 2.80 | 124.00 | 2.50 | 42.80 | 21.75 | 0.72 | 30.54 |
| 1294 | Teshale×2205 | 81.00 | 0.00 | 10.40 | 4.60 | 121.50 | 2.00 | 81.85 | 20.95 | 0.76 | 61.77 |
| 1295 | Teshale×2205 | 85.50 | 0.10 | 10.50 | 4.40 | 118.50 | 3.50 | 38.33 | 15.61 | 0.66 | 25.20 |
| 1296 | Teshale×2205 | 93.00 | 0.20 | 10.40 | 0.70 | 128.00 | 3.00 | 55.63 | 19.23 | 0.75 | 41.53 |
| 1297 | Teshale×2205 | 84.50 | 0.20 | 11.10 | 6.50 | 121.00 | 2.50 | 99.60 | 21.39 | 0.71 | 69.39 |
| 1298 | Teshale×2205 | 85.00 | 0.00 | 9.97 | 3.90 | 121.50 | 2.50 | 97.48 | 16.50 | 0.70 | 67.23 |
| 1299 | Teshale×2205 | 78.50 | 0.54 | 10.00 | 1.17 | 120.00 | 3.00 | 52.60 | 18.91 | 0.76 | 39.69 |
| 1300 | Teshale×2205 | 85.00 | 0.10 | 10.00 | 13.60 | 129.00 | 3.00 | 85.64 | 16.97 | 0.75 | 64.11 |
| 1301 | Teshale×2205 | 89.50 | 0.20 | 9.50 | 2.40 | 129.50 | 3.00 | 287.13 | 16.25 | 0.41 | 45.09 |
| 1302 | Teshale×2205 | 88.50 | 0.00 | 10.13 | 2.70 | 124.00 | 2.50 | 49.50 | 13.08 | 0.67 | 33.58 |
| 1303 | Teshale×2205 | 87.00 | 0.50 | 9.83 | 2.00 | 119.50 | 3.50 | 68.85 | 15.97 | 0.74 | 51.46 |
| 1304 | Teshale×2205 | 81.50 | 0.25 | 11.40 | 1.90 | 117.50 | 3.50 | 83.75 | 18.70 | 0.76 | 62.55 |
| 1305 | Teshale×2205 | 89.00 | 0.60 | 10.50 | 5.20 | 122.50 | 3.50 | 67.03 | 17.14 | 0.70 | 46.52 |
| 1306 | Teshale×2205 | 84.00 | 0.50 | 10.10 | 2.70 | 118.50 | 2.50 | 69.90 | 17.10 | 0.75 | 51.95 |
| 1307 | Teshale×2205 | 91.00 | 0.40 | 9.75 | 5.40 | 127.00 | 3.50 | 91.50 | 18.68 | 0.62 | 49.58 |
| 1308 | Teshale×2205 | 85.00 | 1.50 | 10.00 | 1.25 | 120.00 | 1.50 | 68.88 | 18.31 | 0.13 | 8.90 |
| 1309 | Teshale×2205 | 85.50 | 0.60 | 10.10 | 4.80 | 123.00 | 3.00 | 70.10 | 21.00 | 0.75 | 51.68 |
| 1310 | Teshale×2205 | 81.00 | 0.60 | 12.20 | 4.73 | 120.00 | 2.50 | 110.50 | 27.79 | 0.80 | 91.54 |
| 1311 | Teshale×2205 | 87.00 | 1.00 | 10.60 | 3.60 | 124.00 | 2.00 | 61.40 | 18.57 | 0.55 | 32.86 |
| 1312 | Teshale×2205 | 82.00 | 0.10 | 9.60 | 0.70 | 123.00 | 3.00 | 80.20 | 18.92 | 0.71 | 55.50 |
| 1313 | Teshale×2205 | 84.00 | 0.40 | 10.21 | 3.40 | 126.50 | 4.00 | 72.19 | 21.28 | 0.74 | 53.31 |
| 1314 | Teshale×2205 | 83.50 | 0.00 | 9.60 | 1.92 | 125.50 | 2.00 | 43.22 | 15.76 | 0.65 | 28.71 |
| 1315 | Teshale×2205 | 91.00 | 0.00 | 10.40 | 2.04 | 128.00 | 2.50 | 35.00 | 17.93 | 0.74 | 25.76 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1316 | Teshale×2205 | 85.00 | 0.00 | 9.00 | 2.00 | 119.50 | 4.00 | 73.55 | 18.25 | 0.77 | 58.08 |
| 1317 | Teshale×2205 | 88.00 | 1.67 | 8.79 | 0.84 | 128.50 | 3.50 | 66.94 | 15.97 | 0.74 | 50.00 |
| 1319 | Teshale×2205 | 77.00 | 1.09 | 9.53 | 1.88 | 121.50 | 3.00 | 51.14 | 18.37 | 0.74 | 36.77 |
| 1320 | Teshale×2205 | 93.00 | 1.30 | 11.05 | 9.48 | 130.50 | 2.00 | 29.35 | 16.50 | 0.61 | 18.38 |
| 1321 | Teshale×2205 | 91.00 | 0.30 | 10.00 | 6.40 | 129.00 | 1.50 | 93.17 | 19.07 | 0.77 | 70.84 |
| 1322 | Teshale×2205 | 81.00 | 0.00 | 9.00 | 12.00 | 128.00 | 1.00 | 67.50 | 20.01 | 0.62 | 41.83 |
| 1323 | Teshale×2205 | 83.00 | 1.50 | 10.00 | 15.75 | 123.00 | 1.50 | 62.69 | 21.10 | 0.73 | 45.74 |
| 1324 | Teshale×2205 | 86.50 | 1.00 | 12.70 | 19.25 | 126.50 | 2.00 | 63.50 | 16.32 | 0.68 | 43.52 |
| 1325 | Teshale×2205 | 85.00 | 1.50 | 7.25 | 6.00 | 122.50 | 2.00 | 93.69 | 21.15 | 0.84 | 79.49 |
| 1326 | Teshale×2205 | 90.00 | 0.50 | 10.20 | 19.25 | 126.00 | 2.00 | 63.75 | 18.73 | 0.76 | 48.06 |
| 1327 | Teshale×2205 | 81.50 | 0.00 | 10.00 | 0.00 | 119.50 | 3.00 | 84.55 | 22.64 | 0.81 | 68.64 |
| 1328 | Teshale×2205 | 92.50 | 0.30 | 10.63 | 7.90 | 124.50 | 3.00 | 64.90 | 22.85 | 0.67 | 46.16 |
| 1329 | Teshale×2205 | 92.50 | 0.70 | 10.48 | 2.20 | 124.00 | 2.00 | 37.30 | 16.18 | 0.67 | 24.42 |
| 1330 | Teshale×2205 | 85.50 | 0.68 | 10.00 | 2.10 | 120.00 | 3.00 | 83.45 | 17.34 | 0.75 | 66.47 |
| 1331 | Teshale×2205 | 82.50 | 1.20 | 10.35 | 5.90 | 118.50 | 2.50 | 93.44 | 23.91 | 0.83 | 77.56 |
| 1332 | Teshale×2205 | 84.00 | 0.20 | 10.00 | 17.95 | 123.00 | 2.50 | 86.50 | 21.10 | 0.74 | 63.25 |
| 1333 | Teshale×2205 | 95.00 | 0.67 | 11.00 | 4.50 | 126.00 | 2.00 | 26.10 | 13.03 | 0.62 | 16.63 |
| 1334 | Teshale×2205 | 89.00 | 0.00 | 9.00 | 0.00 | 127.00 | 2.00 | 38.25 | 11.76 | 0.65 | 25.57 |
| 1335 | Teshale×2205 | 88.00 | 0.00 | 10.00 | 0.00 | 126.50 | 4.00 | 63.25 | 19.15 | 0.61 | 42.80 |
| 1336 | Teshale×14556 | 77.00 | 0.50 | 10.00 | 0.00 | 121.00 | 1.50 | 98.37 | 26.12 | 0.77 | 74.65 |
| 1338 | Teshale×14556 | 84.50 | 0.87 | 9.75 | 6.90 | 119.50 | 3.00 | 94.08 | 22.07 | 0.75 | 70.25 |
| 1340 | Teshale×14556 | 84.00 | 0.75 | 10.40 | 4.75 | 118.50 | 2.50 | 32.48 | 12.25 | 0.65 | 22.29 |
| 1341 | Teshale×14556 | 93.00 | 0.00 | 9.23 | 0.60 | 124.00 | 3.50 | 62.05 | 17.73 | 0.75 | 46.66 |
| 1342 | Teshale×14556 | 88.00 | 0.13 | 11.35 | 2.70 | 118.50 | 3.00 | 67.51 | 18.42 | 0.75 | 51.67 |
| 1343 | Teshale×14556 | 82.50 | 0.85 | 9.85 | 4.05 | 119.50 | 3.00 | 84.60 | 17.13 | 0.76 | 62.59 |
| 1344 | Teshale×14556 | 86.00 | 0.43 | 10.59 | 4.00 | 119.50 | 3.50 | 69.79 | 15.96 | 0.71 | 49.67 |
| 1345 | Teshale×14556 | 92.00 | 0.00 | 10.90 | 6.50 | 123.50 | 3.50 | 59.38 | 14.78 | 0.62 | 37.57 |
| 1346 | Teshale×14556 | 84.50 | 0.20 | 11.07 | 3.80 | 118.00 | 2.50 | 97.47 | 17.75 | 0.75 | 72.82 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1347 | Teshale×14556 | 84.00 | 0.20 | 10.00 | 6.10 | 119.00 | 3.50 | 116.30 | 20.05 | 0.76 | 89.71 |
| 1348 | Teshale×14556 | 89.00 | 0.20 | 10.15 | 0.80 | 123.00 | 3.00 | 63.85 | 16.49 | 0.70 | 44.88 |
| 1349 | Teshale×14556 | 88.00 | 0.55 | 9.10 | 4.90 | 118.50 | 2.50 | 55.50 | 14.88 | 0.72 | 42.35 |
| 1350 | Teshale×14556 | 82.00 | 0.30 | 10.70 | 4.60 | 117.00 | 3.00 | 70.35 | 21.12 | 0.75 | 54.20 |
| 1351 | Teshale×14556 | 88.50 | 0.90 | 11.00 | 3.00 | 124.00 | 3.00 | 60.60 | 19.95 | 0.80 | 49.32 |
| 1352 | Teshale×14556 | 87.50 | 1.20 | 10.33 | 4.20 | 123.00 | 3.00 | 62.75 | 17.18 | 0.69 | 43.48 |
| 1353 | Teshale×14556 | 84.50 | 0.25 | 10.00 | 6.40 | 120.00 | 3.50 | 81.52 | 18.42 | 0.75 | 60.76 |
| 1354 | Teshale×14556 | 79.00 | 0.80 | 10.00 | 4.40 | 118.00 | 4.00 | 100.83 | 20.49 | 0.88 | 87.35 |
| 1355 | Teshale×14556 | 83.00 | 0.25 | 8.50 | 14.00 | 122.00 | 4.00 | 97.44 | 18.63 | 0.79 | 74.80 |
| 1356 | Teshale×14556 | 84.50 | 0.80 | 10.40 | 10.50 | 121.50 | 3.50 | 65.15 | 17.05 | 0.73 | 47.61 |
| 1357 | Teshale×14556 | 88.00 | 0.60 | 10.30 | 3.10 | 122.00 | 3.00 | 97.32 | 19.60 | 0.72 | 72.97 |
| 1358 | Teshale×14556 | 89.00 | 0.00 | 9.00 | 3.50 | 120.00 | 3.00 | 87.25 | 18.10 | 0.07 | 6.57 |
| 1359 | Teshale×14556 | 84.00 | 0.00 | 9.13 | 6.00 | 119.50 | 3.00 | 91.45 | 22.73 | 0.77 | 69.60 |
| 1360 | Teshale×14556 | 90.50 | 0.00 | 10.13 | 9.45 | 126.00 | 2.50 | 92.63 | 21.16 | 0.84 | 76.47 |
| 1361 | Teshale×14556 | 86.00 | 0.50 | 10.25 | 8.63 | 121.00 | 1.50 | 76.59 | 17.45 | 0.75 | 57.30 |
| 1362 | Teshale×14556 | 88.50 | 0.25 | 10.67 | 2.13 | 123.50 | 3.50 | 56.45 | 17.37 | 0.73 | 42.36 |
| 1363 | Teshale×14556 | 84.00 | 0.10 | 10.50 | 1.30 | 119.00 | 3.50 | 100.33 | 24.00 | 0.80 | 80.67 |
| 1364 | Teshale×14556 | 93.50 | 1.50 | 9.80 | 5.50 | 124.00 | 3.00 | 72.20 | 17.05 | 0.77 | 56.10 |
| 1365 | Teshale×14556 | 90.50 | 0.00 | 10.10 | 0.30 | 125.00 | 3.00 | 43.35 | 22.42 | 0.78 | 33.23 |
| 1366 | Teshale×14556 | 87.00 | 0.90 | 9.00 | 4.20 | 127.00 | 3.00 | 85.20 | 20.07 | 0.82 | 68.89 |
| 1367 | Teshale×14556 | 92.00 | 1.00 | 9.75 | 5.70 | 126.00 | 3.00 | 71.60 | 19.41 | 0.76 | 54.85 |
| 1368 | Teshale×14556 | 98.00 | 0.50 | 9.00 | 2.50 | 129.00 | 1.50 | 45.50 | 15.39 | 0.70 | 32.62 |
| 1369 | Teshale×14556 | 82.50 | 0.00 | 9.90 | 0.00 | 119.50 | 2.00 | 78.95 | 20.16 | 0.78 | 61.69 |
| 1370 | Teshale×14556 | 92.00 | 0.10 | 9.50 | 7.00 | 122.00 | 3.50 | 82.59 | 18.96 | 0.65 | 53.66 |
| 1371 | Teshale×14556 | 83.00 | 0.38 | 10.67 | 4.63 | 122.00 | 3.50 | 71.35 | 21.32 | 0.72 | 51.04 |
| 1372 | Teshale×14556 | 89.50 | 0.27 | 10.50 | 2.74 | 123.50 | 2.50 | 57.50 | 12.92 | 0.62 | 36.51 |
| 1373 | Teshale×14556 | 79.00 | 0.00 | 10.20 | 4.50 | 120.00 | 3.50 | 111.93 | 25.63 | 0.83 | 93.75 |
| 1374 | Teshale×14556 | 79.00 | 0.30 | 9.40 | 4.80 | 122.00 | 3.00 | 96.85 | 22.45 | 0.81 | 77.48 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1375 | Teshale×14556 | 84.00 | 0.40 | 10.92 | 8.40 | 123.50 | 3.50 | 96.20 | 22.40 | 0.84 | 78.83 |
| 1376 | Teshale×14556 | 90.00 | 0.92 | 10.34 | 10.88 | 126.00 | 2.50 | 69.95 | 20.19 | 0.79 | 56.26 |
| 1377 | Teshale×14556 | 78.00 | 0.17 | 10.20 | 3.54 | 118.50 | 2.00 | 93.05 | 21.09 | 0.81 | 74.31 |
| 1378 | Teshale×14556 | 92.00 | 0.10 | 11.00 | 9.10 | 129.00 | 4.00 | 51.83 | 14.24 | 0.76 | 38.88 |
| 1380 | Teshale×16044 | 84.50 | 0.33 | 9.80 | 6.67 | 118.50 | 1.00 | 75.38 | 17.74 | 0.76 | 58.79 |
| 1381 | Teshale×16044 | 98.50 | 0.30 | 9.80 | 4.90 | 127.00 | 3.50 | 44.70 | 17.05 | 0.59 | 27.97 |
| 1382 | Teshale×16044 | 80.50 | 0.10 | 10.80 | 0.20 | 118.00 | 3.00 | 56.34 | 19.66 | 0.79 | 44.15 |
| 1383 | Teshale×16044 | 78.50 | 1.03 | 10.80 | 9.60 | 117.00 | 4.00 | 59.60 | 19.69 | 0.75 | 44.56 |
| 1384 | Teshale×16044 | 84.00 | 0.00 | 10.60 | 7.40 | 119.50 | 3.50 | 66.40 | 19.06 | 0.77 | 50.46 |
| 1385 | Teshale×16044 | 87.50 | 0.30 | 9.90 | 5.70 | 121.50 | 3.00 | 55.10 | 17.09 | 0.73 | 41.13 |
| 1386 | Teshale×16044 | 88.50 | 0.70 | 9.00 | 4.20 | 124.00 | 3.00 | 56.35 | 17.78 | 0.64 | 38.17 |
| 1387 | Teshale×16044 | 82.50 | 0.40 | 11.50 | 1.10 | 118.50 | 3.50 | 77.85 | 20.66 | 0.80 | 60.96 |
| 1388 | Teshale×16044 | 84.50 | 0.50 | 11.40 | 1.90 | 121.00 | 4.00 | 42.45 | 18.08 | 0.41 | 27.27 |
| 1389 | Teshale×16044 | 91.50 | 1.00 | 10.80 | 5.10 | 126.50 | 4.00 | 93.70 | 18.40 | 0.76 | 71.53 |
| 1390 | Teshale×16044 | 91.50 | 0.40 | 10.67 | 2.70 | 126.00 | 3.00 | 33.65 | 14.97 | 0.71 | 24.57 |
| 1391 | Teshale×16044 | 87.50 | 0.10 | 10.40 | 0.80 | 124.50 | 3.00 | 71.80 | 18.72 | 0.67 | 47.72 |
| 1392 | Teshale×16044 | 82.00 | 0.00 | 8.80 | 4.80 | 118.50 | 2.50 | 61.60 | 22.99 | 0.79 | 48.15 |
| 1393 | Teshale×16044 | 97.50 | 0.00 | 11.50 | 13.60 | 128.00 | 3.00 | 54.57 | 16.06 | 0.58 | 32.89 |
| 1394 | Teshale×16044 | 84.50 | 0.25 | 9.40 | 0.80 | 122.00 | 3.00 | 54.35 | 21.43 | 0.80 | 44.09 |
| 1395 | Teshale×16044 | 92.50 | 0.20 | 10.50 | 11.70 | 123.00 | 3.50 | 46.85 | 17.01 | 0.74 | 35.45 |
| 1396 | Teshale×16044 | 88.50 | 0.10 | 8.50 | 1.70 | 121.50 | 3.00 | 53.10 | 19.39 | 0.77 | 41.07 |
| 1397 | Teshale×16044 | 81.50 | 0.20 | 11.05 | 11.30 | 119.50 | 3.00 | 95.30 | 23.50 | 0.82 | 77.40 |
| 1398 | Teshale×16044 | 95.00 | 0.00 | 10.00 | 3.30 | 128.50 | 3.50 | 47.96 | 15.93 | 0.63 | 30.13 |
| 1399 | Teshale×16044 | 87.00 | 0.00 | 10.00 | 1.10 | 118.50 | 2.50 | 53.65 | 18.02 | 0.71 | 39.06 |
| 1400 | Teshale×16044 | 83.50 | 0.00 | 10.80 | 2.90 | 117.50 | 3.00 | 70.15 | 19.85 | 0.79 | 54.73 |
| 1401 | Teshale×16044 | 77.50 | 0.20 | 10.70 | 12.80 | 121.00 | 4.00 | 60.35 | 30.23 | 0.78 | 48.08 |
| 1402 | Teshale×16044 | 94.50 | 0.30 | 12.10 | 9.70 | 129.00 | 1.50 | 77.95 | 19.43 | 0.74 | 57.94 |
| 1403 | Teshale×16044 | 98.00 | 0.30 | 11.88 | 0.00 | 126.00 | 2.00 | 68.13 | 20.88 | 0.73 | 49.45 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1404 | Teshale×16044 | 90.00 | 0.38 | 10.00 | 6.75 | 126.50 | 2.00 | 61.45 | 18.46 | 0.76 | 47.06 |
| 1405 | Teshale×16044 | 87.50 | 0.10 | 8.85 | 5.50 | 121.50 | 3.00 | 28.00 | 15.47 | 0.46 | 17.89 |
| 1406 | Teshale×16044 | 97.00 | 0.00 | 11.10 | 6.05 | 125.50 | 4.00 | 63.05 | 17.96 | 0.76 | 48.31 |
| 1407 | Teshale×16044 | 87.50 | 0.10 | 7.50 | 3.50 | 127.00 | 2.50 | 83.28 | 24.17 | 0.79 | 65.00 |
| 1408 | Teshale×16044 | 85.50 | 1.63 | 11.70 | 18.63 | 122.50 | 3.00 | 99.10 | 21.64 | 0.71 | 66.86 |
| 1409 | Teshale×16044 | 84.50 | 0.70 | 8.00 | 5.40 | 123.00 | 3.50 | 42.75 | 16.88 | 0.75 | 32.46 |
| 1410 | Teshale×16044 | 88.00 | 0.20 | 10.58 | 7.40 | 122.00 | 3.50 | 73.13 | 18.95 | 0.78 | 56.20 |
| 1411 | Teshale×16044 | 82.50 | 0.10 | 12.20 | 3.53 | 120.50 | 3.00 | 90.65 | 21.68 | 0.80 | 71.87 |
| 1413 | Teshale×16044 | 90.00 | 1.40 | 8.00 | 7.30 | 127.00 | 3.50 | 32.10 | 17.64 | 0.74 | 23.52 |
| 1414 | Teshale×16044 | 86.00 | 0.50 | 11.20 | 9.50 | 122.00 | 3.00 | 68.25 | 23.75 | 0.80 | 57.20 |
| 1415 | Teshale×16044 | 82.00 | 0.30 | 10.70 | 6.60 | 119.50 | 3.50 | 69.20 | 22.45 | 0.81 | 56.75 |
| 1416 | Teshale×16044 | 83.00 | 0.50 | 9.30 | 14.20 | 122.00 | 3.50 | 74.00 | 25.22 | 0.75 | 58.07 |
| 1417 | Teshale×16044 | 84.00 | 0.10 | 9.50 | 9.70 | 119.50 | 3.00 | 72.50 | 17.73 | 0.73 | 52.61 |
| 1418 | Teshale×16044 | 89.50 | 0.20 | 10.47 | 3.50 | 124.00 | 4.00 | 56.44 | 16.75 | 0.72 | 41.49 |
| 1419 | Teshale×16044 | 90.00 | 0.37 | 11.50 | 1.30 | 124.50 | 3.00 | 88.42 | 18.02 | 0.84 | 75.25 |
| 1420 | Teshale×16044 | 80.00 | 0.40 | 10.60 | 0.80 | 115.50 | 2.50 | 73.14 | 19.64 | 0.76 | 54.64 |
| 1421 | Teshale×16044 | 85.50 | 0.10 | 10.80 | 4.90 | 119.50 | 4.00 | 82.05 | 22.38 | 0.79 | 64.94 |
| 1422 | Teshale×16044 | 85.00 | 0.90 | 8.77 | 2.70 | 122.00 | 3.50 | 56.89 | 23.32 | 0.81 | 45.74 |
| 1423 | Teshale×16044 | 76.50 | 0.00 | 10.60 | 6.20 | 117.00 | 3.00 | 74.72 | 23.89 | 0.81 | 61.01 |
| 1424 | Teshale×16044 | 90.50 | 0.40 | 9.80 | 14.10 | 128.00 | 3.50 | 83.42 | 21.28 | 0.77 | 64.89 |
| 1425 | Teshale×16044 | 83.50 | 0.00 | 10.20 | 3.30 | 122.00 | 2.50 | 61.20 | 23.69 | 0.78 | 47.90 |
| 1426 | Teshale×16044 | 91.00 | 0.30 | 9.00 | 6.40 | 127.00 | 3.00 | 39.50 | 26.15 | 0.82 | 32.07 |
| 1427 | Teshale×16044 | 84.50 | 1.00 | 9.80 | 18.00 | 118.50 | 2.00 | 56.85 | 21.93 | 0.80 | 44.56 |
| 1428 | Teshale×16044 | 84.00 | 0.10 | 10.10 | 10.80 | 122.50 | 2.50 | 59.10 | 21.11 | 0.77 | 45.95 |
| 1430 | Teshale×16044 | 87.00 | 0.10 | 10.60 | 6.73 | 122.50 | 2.50 | 73.80 | 24.38 | 0.78 | 58.45 |
| 1431 | Teshale×16044 | 83.00 | 0.10 | 10.10 | 2.90 | 122.50 | 3.00 | 78.70 | 25.40 | 0.82 | 65.36 |
| 1432 | Teshale×16044 | 84.00 | 0.40 | 10.10 | 6.20 | 124.00 | 2.50 | 81.77 | 23.28 | 0.81 | 65.10 |
| 1433 | Teshale×32234 | 81.50 | 1.05 | 9.40 | 10.85 | 120.50 | 2.50 | 60.25 | 22.88 | 0.81 | 48.58 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1434 | Teshale×32234 | 82.00 | 0.80 | 10.17 | 6.20 | 121.50 | 2.50 | 97.75 | 33.38 | 0.79 | 77.63 |
| 1435 | Teshale×32234 | 81.00 | 1.84 | 12.00 | 12.67 | 125.00 | 2.00 | 105.00 | 31.28 | 0.81 | 85.49 |
| 1436 | Teshale×32234 | 83.00 | 3.00 | 8.30 | 12.00 | 124.00 | 1.00 | 22.63 | 20.51 | 0.76 | 17.21 |
| 1437 | Teshale×32234 | 89.50 | 2.75 | 8.09 | 23.30 | 131.00 | 3.50 | 33.38 | 24.24 | 0.90 | 29.68 |
| 1438 | Teshale×32234 | 73.50 | 0.00 | 8.96 | 27.75 | 121.00 | 2.00 | 37.70 | 22.35 | 0.70 | 26.09 |
| 1439 | Teshale×32234 | 84.50 | 2.42 | 8.50 | 29.38 | 122.50 | 1.50 | 60.13 | 22.16 | 0.74 | 44.53 |
| 1440 | Teshale×32234 | 80.00 | 0.50 | 9.05 | 16.59 | 119.50 | 3.50 | 45.99 | 22.86 | 0.78 | 35.81 |
| 1441 | Teshale×32234 | 68.50 | 0.50 | 10.30 | 12.88 | 116.50 | 3.50 | 70.86 | 23.14 | 0.74 | 55.12 |
| 1442 | Teshale×32234 | 83.50 | 0.50 | 8.90 | 18.50 | 125.50 | 2.50 | 51.55 | 19.99 | 0.68 | 35.15 |
| 1443 | Teshale×32234 | 75.00 | 1.20 | 9.67 | 11.70 | 120.00 | 2.00 | 44.17 | 20.80 | 0.84 | 37.55 |
| 1444 | Teshale×32234 | 77.00 | 0.00 | 9.30 | 26.50 | 118.50 | 1.00 | 40.75 | 21.73 | 0.68 | 27.99 |
| 1445 | Teshale×32234 | 80.50 | 0.40 | 11.30 | 14.60 | 118.50 | 2.50 | 64.00 | 18.94 | 0.72 | 44.72 |
| 1446 | Teshale×32234 | 81.50 | 0.40 | 8.10 | 17.70 | 122.50 | 3.00 | 41.48 | 18.20 | 0.67 | 27.93 |
| 1447 | Teshale×32234 | 86.50 | 0.78 | 7.75 | 17.03 | 127.00 | 3.00 | 70.75 | 12.40 | 0.66 | 45.53 |
| 1448 | Teshale×32234 | 82.50 | 0.75 | 9.58 | 10.50 | 118.50 | 3.50 | 56.35 | 18.29 | 0.72 | 40.54 |
| 1449 | Teshale×32234 | 84.00 | 0.53 | 10.14 | 20.63 | 126.00 | 2.50 | 103.44 | 21.97 | 0.73 | 75.11 |
| 1450 | Teshale×32234 | 83.50 | 0.17 | 10.98 | 8.57 | 125.00 | 3.50 | 68.30 | 16.30 | 0.75 | 50.21 |
| 1451 | Teshale×32234 | 81.00 | 0.13 | 8.90 | 9.43 | 124.00 | 3.00 | 64.65 | 23.96 | 0.70 | 45.34 |
| 1452 | Teshale×32234 | 74.50 | 0.90 | 8.70 | 16.40 | 116.00 | 3.50 | 79.55 | 25.89 | 0.75 | 59.51 |
| 1453 | Teshale×32234 | 86.00 | 0.54 | 11.00 | 11.70 | 128.00 | 3.00 | 83.82 | 22.90 | 0.76 | 62.31 |
| 1454 | Teshale×32234 | 85.00 | 0.35 | 8.75 | 5.50 | 120.00 | 2.00 | 85.50 | 25.13 | 0.74 | 63.07 |
| 1455 | Teshale×32234 | 86.50 | 0.25 | 11.88 | 11.00 | 120.00 | 3.00 | 103.19 | 21.18 | 0.77 | 80.39 |
| 1456 | Teshale×32234 | 77.50 | 1.00 | 8.25 | 5.25 | 118.50 | 2.50 | 46.02 | 21.30 | 0.77 | 35.41 |
| 1457 | Teshale×32234 | 84.50 | 0.55 | 10.83 | 19.55 | 122.00 | 2.00 | 81.87 | 22.21 | 0.77 | 63.51 |
| 1458 | Teshale×32234 | 82.50 | 0.10 | 8.05 | 10.53 | 124.00 | 2.50 | 49.08 | 24.18 | 0.80 | 38.61 |
| 1459 | Teshale×32234 | 89.00 | 0.25 | 9.33 | 28.25 | 125.00 | 2.50 | 38.00 | 21.64 | 0.68 | 26.16 |
| 1460 | Teshale×32234 | 81.50 | 0.00 | 10.28 | 0.00 | 122.50 | 3.00 | 83.13 | 23.21 | 0.73 | 59.28 |
| 1461 | Teshale×32234 | 78.00 | 0.00 | 9.00 | 16.78 | 119.00 | 2.50 | 48.33 | 26.00 | 0.83 | 39.54 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 1462 | Teshale×32234 | 82.00 | 1.50 | 8.75 | 2.50 | 118.00 | 4.00 | 16.25 | 25.28 | 0.74 | 12.38 |
| 1463 | Teshale×32234 | 79.00 | 1.00 | 9.20 | 6.50 | 118.50 | 4.00 | 49.98 | 20.03 | 0.80 | 40.39 |
| 1464 | Teshale×32234 | 100.00 | 1.05 | 8.00 | 11.95 | 132.00 | 4.00 | 10.00 | 18.21 | 0.70 | 7.12 |
| 1465 | Teshale×32234 | 74.50 | 3.00 | 9.50 | 0.00 | 122.00 | 3.00 | 84.30 | 29.09 | 0.83 | 70.10 |
| 1466 | IS14446 | 86.50 | 1.70 | 8.25 | 8.00 | 127.00 | 2.00 | 56.25 | 31.91 | 0.73 | 42.05 |
| 1467 | IS10876 | 86.00 | 1.75 | 11.00 | 10.00 | 124.00 | 1.50 | 71.30 | 27.83 | 0.81 | 57.87 |
| 1468 | IS15428 | 84.00 | 0.33 | 10.30 | 9.08 | 122.00 | 2.50 | 79.80 | 20.84 | 0.79 | 63.49 |
| 1469 | IS22325 | 79.50 | 0.50 | 10.00 | 6.07 | 121.00 | 3.50 | 75.45 | 21.34 | 0.80 | 59.94 |
| 1470 | IS14298 | 84.50 | 0.60 | 10.13 | 17.30 | 122.00 | 2.50 | 73.15 | 23.36 | 0.85 | 63.53 |
| 1471 | IS16173 | 81.00 | 0.45 | 10.44 | 7.77 | 118.50 | 3.50 | 90.25 | 21.17 | 0.79 | 71.13 |
| 1472 | IS3583 | 82.50 | 1.00 | 10.20 | 4.04 | 117.00 | 2.50 | 64.90 | 15.02 | 0.76 | 49.22 |
| 1473 | IS9911 | 90.00 | 0.30 | 10.00 | 4.50 | 122.50 | 4.00 | 49.00 | 17.39 | 0.79 | 39.24 |
| 1474 | IS23988 | 85.00 | 0.17 | 10.33 | 7.17 | 128.00 | 2.00 | 82.63 | 22.76 | 0.78 | 65.83 |
| 1477 | IS16044 | 88.00 | 1.67 | 10.40 | 10.00 | 119.50 | 1.00 | 87.60 | 27.09 | 0.86 | 76.98 |
| 1478 | IS32234 | 78.00 | 0.00 | 9.00 | 15.60 | 117.00 | 3.00 | 21.20 | 26.43 | 0.79 | 16.57 |
| 1479 | Teshale | 84.00 | 2.50 | 9.40 | 21.00 | 120.00 | 1.00 | 44.95 | 16.62 | 0.56 | 44.35 |
| Local check(Jebyes) | | 91.00 | 0.20 | 13.75 | 3.80 | 134.00 | 3.00 | 97.10 | 24.82 | 0.72 | 70.79 |
| Standard check(Dakaba) | | 85.50 | 0.20 | 10.40 | 0.60 | 117.50 | 4.50 | 35.95 | 11.37 | 0.54 | 21.19 |
| Minimum | | 64.50 | 0.20 | 6.00 | 0.00 | 113.00 | 1.00 | 10.00 | 1.43 | 0.03 | 1.87 |
| Maximum | | 105.00 | 2.03 | 14.00 | 29.38 | 137.00 | 5.00 | 287.10 | 38.90 | 0.97 | 131.50 |
| Mean | | 85.08 | 0.96 | 9.96 | 2.53 | 122.66 | 2.80 | 71.48 | 20.77 | 0.75 | 54.13 |
| LSD(0.05) | | 10.73 | 0.55 | 1.83 | 1.81 | 8.39 | 0.45 | 49.40 | 8.73 | 0.16 | 37.51 |
| CV(%) | | 5.87 | 26.78 | 8.55 | 33.37 | 3.18 | 27.45 | 32.17 | 19.56 | 9.92 | 32.26 |

DF= Days to 50% flowering, NL=number of leaf, NT=number of tiller, PL=Panicle excertion, LS=leaf senescence, DM= Days to maturity, PW= Panicle weights, TSW=Thousand seed weights, GYP = grains yield per panicle PHI=Panicle harvest index