Table S3. Formula used for estimating geometrical properties of onion bulbs

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| Geometrical trait | Formula | Reference |
| Aspect ratio (Ra) | $$Ra=\frac{PD}{ED}\*100$$ | (Gautam 2021) |
| Shape index (SHI) | $$SHI=\frac{ED }{√PD\*T}$$ | (Gautam 2021; Kaveri & Thirupathi 2015) |
| Sphericity (STY) | $$STY=\frac{(ED\*PD\*T)^{1/3}}{ED}$$ | (Gautam 2021; Kaveri & Thirupathi 2015) |
| Geometric mean diameter (Dgm) | $$Dgm=3\sqrt{ED}\*PD\*T$$ | (Gautam 2021; Kaveri & Thirupathi 2015) |
| Arithmetic mean diameter (Dam) | $$Dam=\frac{ED + PD + T}{3}$$ | (Gautam 2021; Kaveri & Thirupathi 2015) |
| Surface area (Sa) | $$Sa=π\*(Dgm)^{2}$$ | (Gautam 2021) |
| Frontal surface area | $$Af.s=\frac{π}{4}+ED\*PD$$ | (Gautam 2021; Kaveri & Thirupathi 2015) |
| Cross sectional area | $$Ac.s=\frac{π}{4}\frac{(ED\*PD\*T)^{2}}{9}$$ | (Gautam 2021; Kaveri & Thirupathi 2015) |

PD: Polar diameter, ED: Equatorial diameter, T: Transverse diameter or bulb thickness