

Pure Live Seed Calculations - Single Variety

Pure Live Seed (PLS) is simple to calculate using the information provided on the analysis tag attached to each bag of seed sold in Maryland. To calculate PLS you need to know the percentage of pure seed and the percentage germination.

For example, a 50 lb. bag of Inferno Tall Fescue has a pure seed of 98.16% with a germination of 88%.

To calculate the PLS:

A: Multiply the % pure seed by the % germination (0.9816×0.88) = 86.38% PLS

To calculate the total weight of Inferno PLS in a 50 lb. bag:

B: Multiply the % PLS by the net weight of the bag (0.8638×50) = 43.19 lbs. PLS

Thus, this 50 lb. bag of Inferno Tall Fescue contains 43.19 of pure live seed (PLS). If the recommended seeding rate is 6 lbs. PLS per 1000 sf, you will need more than 6 lbs. of Inferno.

To calculate the amount of Inferno you will need:

C: Divide the net weight of the bag by the PLS weight of the bag ($50 / 43.19$) = 1.16 lbs

D: Multiply C by the recommended seeding rate (1.16×6) = 6.96 lbs.

Because each pound of Inferno in the bag is only 86% PLS, you will need 1.16 pounds of Inferno for each pound of PLS required by the recommended seeding rate. Since you needed 6 lbs. of PLS, you must use 6.96 lbs. of Inferno.

Pure Live Seed Calculations - Multiple Varieties

Seed mixtures are normally sold by weight of each component that makes up the mixture. Occasionally, specifications are based on the actual pure live seed (PLS) seeding rate or each kind or variety in the mix. Seed mixed and labeled as Maryland Interagency Certified mixtures (blue tag) or as meeting the specifications of the Maryland State Highway Administration (orange tag) must need high standards of purity and germination.

For example: a specification requires that 6.0 pounds of perennial ryegrass and 1.5 lbs. of Kentucky bluegrass be applied per 1000 sf. This would appear to be an 80% / 205 mixture applied at 7.5 lbs./1000 sf.

The Kentucky bluegrass and perennial ryegrass components which are chosen for this mixture show the following test results on their respective tags:

Perennial Ryegrass 99.08% pure seed 95% germination

Kentucky bluegrass 98.67% pure seed 70% germination

To calculate the PLS of the perennial ryegrass & Kentucky bluegrass:

Perennial Ryegrass:

A: Multiply the % pure seed by the % germination (0.9908×0.95) = 94.13% PLS

B: Multiply the % PLS by the required weight (0.9413×6.0) = 5.65 pounds

The 6.0 pounds of perennial ryegrass contains 5.65 pounds of viable seed (PLS). Thus, to apply the recommended seeding rate of 6.0 pounds per 1000 sf you will need more than 6.0 pounds of this seed.

To calculate the amount of perennial ryegrass seed you will need:

C: Divide the recommended seeding rate by the PLS weight ($6.0 / 5.65$) = 1.06 lbs.

D: Multiply C by pounds per 1000 sf (1.06×6.0) = 6.36 pounds

Kentucky bluegrass:

A: Multiply the % pure seed by the % germination (0.9867×0.70) = 69.00% PLS

B: Multiply the % PLS by the required weight (0.69×1.5) = 1.04 pounds

The 1.5 lbs. of Kentucky bluegrass only contains 1.04 pounds of viable seed (PLS). Thus, to apply the recommended seeding rate of 1.5 pounds per 1000 sf you will need more than 1.5 pounds of seed:

To calculate the amount of Kentucky bluegrass seed you will need:

C: Divide the recommended seeding rate by the PLS weight ($1.5 / 1.04$) = 1.44 lbs.

D: Multiply C by pounds per 1000 sf (1.44×1.5) = 2.16 lbs.

To apply 6.0 pounds PLS of perennial ryegrass seed and 1.5 pounds PLS of the Kentucky bluegrass seed, you will need to mix 6.36 pounds of the perennial ryegrass and 2.16 pounds of the Kentucky bluegrass. Thus, you should not mix the seed as an 80% - 20% mixture applied at 7.5 lbs./1000 sf; instead you should mix on the basis of a 74.65% - 25.35% mixture, and seed this at 8.52 lbs./1000 sf (not 7.5 lbs).