



Seed Size of Some Soybean Varieties May be smaller than Normal in 2004

Soybean seed is often harvested in areas that are north of where it will be used for planting. Portions of the Midwest including Iowa and northern Missouri experienced dry weather and hot temperatures during soybean seed-filling. So, Maturity Group III varieties and some Maturity Group IV varieties may have smaller than normal seed size for the 2004 planting season. Normal soybean seeds are about 2700 to 3000 seeds per pound. This year some varieties may be sold with seed sizes of almost 4000 seeds per pound.

Drought and heat have little effect on either germination or seedling vigor. So farmers should not be concerned about buying small sized seed. Unfortunately in some fields, plants actually died prematurely. Seeds from these plants may be green in color. Because the seed died before completing its development, it may not germinate normally. It may be difficult to detect seed color if seeds are treated. In most instances the green seeds will be less round than normal – they will appear slender and elongated. Do not plant discolored or misshapened seeds.

Another effect from drought stress is a higher than normal occurrence of hard seed because of changes in the seedcoat. Hard seed can appear as a lower germination percentage if the test is conducted on newly harvested seed. However, this should have little impact on emergence at planting time, because the number of hard seeds decreases during storage.

Drought and heat often delay the rate at which the vegetative portion (stems and leaves) of the soybean plant matures, but the seeds mature almost normally. As a result, while producers are waiting for the stems to dry down for easier harvesting, the seed becomes too dry for optimal seed quality. If the producer does not pay close attention to combine settings and great care is not taken during handling, a large amount of mechanical damage to the seed can occur. Mechanical damage, even if difficult to detect, has a negative impact on seed germination and vigor.

If producers are concerned about seedling vigor they should request a vigor test (stress test, cold test, accelerated aging). Standard germination tests use relatively warm germination conditions and do not attempt to mimic spring field conditions. Vigor tests are better able to detect seedling growth problems that may develop under stressed growth conditions. Contact the Missouri Seed Improvement Association or the Missouri Department of Agriculture for additional information on these tests.

Some seed beans grown in Missouri have actually exhibited larger than normal seed size. This occurred because stress during pod development and early seed fill reduced pod numbers, dramatically. Then, late season rains occurred during late seed filling. The plants had fewer seeds to develop so each seed became bigger than normal.

Reduced seed size means less stored reserves for emergence. Farmers should be more careful with seeding depth if planting small seeds. Small seeds should emerge from

normal planting depths, but may not emerge from deeper seeding. Growers should be particularly careful if planting with a drill because seeding depth is harder to control.

Probably the biggest concern with small seed size is the potential to over plant. This is particularly true if planters and drills are calibrated by seed weight and not by seed number. A 50-pound bag of soybean seed with a seed size of 2700/seeds per pound contains 135,000 seeds. It would take about 1.2 bags of this seed to plant an acre (assuming a seeding rate of 160,000 seeds/acre) or about 60 pounds. If the planter had been calibrated to plant 60 pounds per acre, but seed size was actually 4000 seeds per pound, the seeding rate would be 240,000 seeds per acre. Seeding at higher than optimum rates wastes money because you plant extra seeds with no increase in yield and you may decrease yield through increased lodging.