

## Advances in Alfalfa Seed Coatings

The volume of alfalfa being sold as coated seed has been in the growth mode for several years. This growth is being fueled by greater acceptance from the producer, as well as the many value added components that are now labeled and being offered as seed treatments. Originally seed coatings were looked at as a better way to deliver rhizobia to insure plant nodulation. This is still one goal, but many more value added components are now labeled that offer better plant protection, increased water absorption, enhanced germination, and micro-nutrient availability, as well as insect and parasite control. Another area that is seeing expanded growth is in all natural organic coating. These coating components are all organically approved and or OMRI (Organic Materials Review Institute) certified.

Nodulation of alfalfa is still one of the most important first steps as the young seedling emerges. These nodules can only form if there is native rhizobium in the soil, or from the rhizobia that is applied as part of the coating or treatment. Proper nodulation of alfalfa can enable it to produce 200-300 lbs available nitrogen for the plant. Without nodulation it would take a great deal of commercial fertilizer to replace this free atmospheric converted nitrogen. Seed coating, due to the volume and accuracy of loading, can supply large numbers of rhizobia to ensure nodulation. The greater numbers that are initially loaded can also lead to a longer shelf life for the rhizobia to remain viable. The components of the coating are very friendly to rhizobia longevity. Some rhizobia strains are more effective than other selections. We have examined several strains to ensure maximum productivity. This is the main reason a pre-inoculated or hand inoculated seed should always be used at planting. The strains that may or may not be in your soil could not be highly effective ones. The commercially available strains have been tested to insure maximum productivity.

Water management as well as available water for germination of alfalfa seed can be very critical. The use of SHP (super hydrating polymers) is one of the areas of greatest growth in seed coatings. These polymers must be applied through a coating due to the accuracy and bulk that is needed for them to be effective. Initially these products were developed for use in the nursery container trade to decrease the amount and regularity of watering. They have since been developed into a soil treatment for use in some of the arid climates where water is a scarce commodity. We have worked with this technology for several years and have been able to develop this into an effective seed coating component. The turf trade has been the earliest adapter, and is using these products on 40 million pounds plus pounds of grass seed annually. The adaptation and use of our alfalfa coatings has been much slower, but is being offered by some alfalfa seed companies. The market for these products is mainly the Western U.S. where water is more critical.

Micro-nutrients and enhancers are another area that we are seeing market growth. The carrier for most coatings is a lime base. Working with western seed companies to develop a unique product for their specific soil types led to the development of a new coating. The ph of these soils can be quite high as compared to the typical Midwest and Southeastern soil. Gypsum and molybdenum were substituted, which showed dramatic results in both university and strip trials. Due to the uniqueness of this product a patent was issued. After extensive testing, a variation of this coating was marketed in the Midwest and Eastern areas. This coating contains the gypsum, molybdenum, and also includes optimize TM. This coating showed an advantage when you starting getting into the lower than optimal, or on the border ph ranges. The addition of optimize, which is a nodulation enhancer added to the benefit. This is being

marketed under the Gold Treatment, Apex Plus, Five Star and some other proprietary seed company treatments.

The newest and next area that seed treatment will be moving toward is the use of an insecticide as part of the treatment and coating process. Some of these are already labeled and used extensively in South America for alfalfa. The chemical companies are applying to EPA at this time to expand their labels for use on alfalfa in the United States. This area of seed treatment will be very beneficial to alfalfa establishment. The possibility of the re-release of roundup ready or at least knowing the fate of GM in alfalfa will move alfalfa forward. There are many GM non roundup genes that could be very beneficial to the alfalfa grower. These have been at a standstill until the fate of Roundup Ready could be decided. The comment period and environment issue are being addressed and now it is up to the regulators to make their decision.

An area of growth for Summit Seed Coatings has been with the addition of an organically approved coating. This coating is different in that it uses no synthetic chemicals. These have been replaced with natural OMRI certified or approved components to meet the organic criteria. This has been well received by the organic grower as it gives him the choice to use a natural product to aid in the establishment of his alfalfa. This coating contains much of the same base components, but also has the addition of Mycohrizze to aid in the early development of initial rooting. We did change the synthetic components and our plant process to meet Organic Processor Certification. The use of legumes by the organic producer is a top priority since they are not able to use commercial fertilizer. Proper nodulation and strong stands can produce more nitrogen and increase their yields. This area is one that has the possibility for the increased market growth.

Seed treatment and coating are experiencing exceptional growth .. This trend is going to continue as more chemicals and treatments are made available. Many of the new treatments will need the bulk of a coating to obtain the correct dosage, and a coating can be the most accurate way to apply. The coating equipment has changed dramatically and with upgrades in the new technology we are taking advantage of new chemistry that will be coming available.