SEED COATING VS. SEED TREATMENT: UNDERSTANDING THE DIFFERENCES
Jeremy Hayward, Brand Manager, W-L Alfalfas

Getting a good alfalfa stand is dependent on many factors, some of which are out of the grower’s control. Weather, for example, is dynamic year to year and can impact planting date and seedbed conditions at planting and beyond. Growers depend on seed treatments and coatings to get alfalfa plants off to a strong, vigorous start. They help maximize germination and seedling survival while mitigating early season threats to stand establishment – such as disease and weather. Most premium alfalfa seed contains a seed treatment pre-loaded in seed coating, but the technologies are often misunderstood and misrepresented in the marketplace.

Seed Treatment or Coating?
Let’s start by clarifying the difference between an alfalfa seed treatment and seed coating. Most alfalfa seed is pre-treated with, at least, an inoculant with a specific strain of rhizobium bacteria for alfalfa, along with a base fungicide. Alfalfa seed inoculated with rhizobium bacteria helps ensure proper nodulation so plants are able to fix atmospheric nitrogen for their growth and development. In addition to rhizobium, a base fungicide like metalaxyl (Apron) or mefenoxam (Apron XL) in a standard seed treatment helps protect germinating seed from early season fungal diseases, including phytophthora and pythium. Additional fungicides like pyroclosterbin (Stamina) can also be utilized for seedling disease control against aphano-myces, rhizoctonia, and fusarium spp.

The seed coating by itself consists of calcium carbonate and an inert polymer to keep nutrients and other active ingredients close to the seed, helping to prevent leaching during germination. Seed coatings may also add weight to small alfalfa seeds to help improve plantability for more even emergence. Rhizobium inoculant and fungicide, along with additional specialized components like growth promoters, micronutrients, mycorrhizae, insecticides, and bioenhancers can also be added to the coating as additional treatments. Some seed coatings also contain hydration polymers that draw moisture to the seed to aid in germination, even in shallow, dry soil.

Most seed treatments and coatings carry a two-year inoculant shelf life, says Bill Talley, owner of Summit Seed Coatings. The rhizobium inoculant strains applied are specifically chosen and may provide better nodulation than strains that are found naturally in soil, he adds. Custom treatments can also provide a higher rate of inoculant to the seed, resulting in longer rhizobia shelf life and better nodulation. Seed coatings allow more inoculant to be applied to the seed, and it is more evenly dispersed, providing the bacteria more protection against heat and temperature fluctuations while seed is stored.

An Economical Insurance Policy
Do you plant into absolute ideal seedbed conditions and have an ideal period for seedling growth each year? Most of the time, the answer is no. There are usually factors each season that challenge alfalfa seed viability and germination. For example, cool and wet or dry soil conditions, agronomic pests, and field
inconsistencies can all impact alfalfa seedling establishment. The value of a seed coating and treatment is that it helps mitigate against these conditions at a small cost relative to the seed. Seed coating and treatments protect the seed investment in an economical way and help establish a vigorous alfalfa crop from the time of planting.

Talley says third-party research done over the years shows a traditional seed coating can convert 60-75% of alfalfa seeds to healthy plants, compared to a 30-40% rate using uncoated or lightly coated seed. He notes that farmers will see the most benefit from seed coatings during the first 30-60 days after planting, when stands are being established. Research has shown that the number of replanted alfalfa acres also declines with the addition of seed coatings.

**Debunking the Myths**

One myth that farmers often hear is that they will have to plant more seed per acre to compensate for the inert matter (coating material) included in a bag of coated alfalfa seed. This misconception stems from a focus on pure live seed (PLS) that was utilized more than 20 years ago. Talley says today’s seed coatings help maximize the number of healthy plants established from each pound of seed, so farmers are able to plant the same rate of coated alfalfa seed as they would of raw, uncoated seed. Germination rates and stand establishment of coated and treated seed are higher than with raw seed, so you don’t need as many alfalfa seeds per acre to get the same stand results.

A seed coating-treatment package costs less than raw alfalfa seed, so farmers will actually be saving on seed cost by planting a coated-treated seed. They’ll put fewer actual seeds in the ground but will still get the same or higher populations and stand establishment as they would if more raw seeds were planted per acre.

Growers may be deterred from seed coatings because they are familiar with older products that left dusty residue in seed bags and on planting equipment. Today’s seed coatings are more advanced; new formulations actually improve movement through the planter and are cleaner to use than traditional seed treatments, Talley says. Farmers should recalibrate their planting equipment when they switch to coated seed, he recommends, because there can be a 5-10% increase in flowability with coated seed.

**Light vs. Heavy Coating**

Light alfalfa coatings contain 8-9% coating material compared to heavy coatings that are closer to 34% inert matter. Light coatings can help reduce dust that is common with raw seed treated with inoculant and fungicide; they also help inoculant stick to the seed better than a standard seed treatment without coating. The benefit of a heavy coating over a light coating is that it adds hydroscopic properties to the seed, attracting moisture for better germination even in shallow, dry soils. As mentioned, heavy coatings serve as carriers for adding other products — like micronutrients and bioenhancers — to the treatment. They can further protect seed and enhance germination and stand establishment.

**Understand What’s in the Bag**

New seed coatings have been formulated to provide an economical solution to early season alfalfa stand establishment challenges. It’s important for farmers to understand what type of treatments and/or coatings are on their alfalfa seed to ensure satisfactory germination and seedling survival. In general, coated seed can be applied to fields at the same rate as raw seed because, even though fewer seeds will be planted, seedling survival will be much higher when using a heavy-coated seed product. Local agronomists or seed representatives can help target appropriate seeding rates to meet growers’ specific stand establishment goals. As the technology continues to advance, growers can count on more treatment options for more vigorous and healthy stand establishment.