

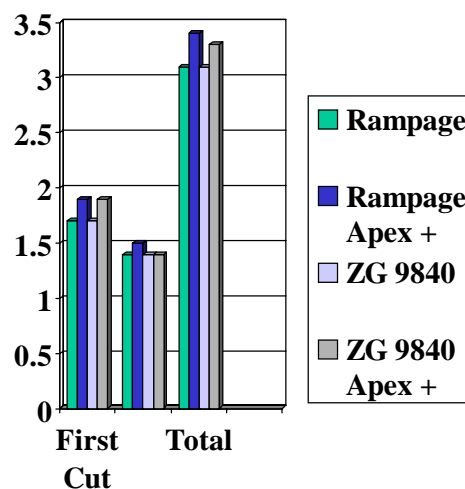
ADVANCES IN ALFALFA SEED COATING

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Seed coating for alfalfa has been available since the mid to late 70's. Over the last 30 years, advances in the industry have made it the choice of many producers. The purpose of the coatings at that time was mainly to add weight to increase the ballistic properties and to be a carrier for the rhizobia. Through research and new technology, coatings have evolved and shown great agronomic benefits. Seed coating can provide an opportunity to supply effective quantities of needed materials to each seed, which can influence both the physical property, and the microenvironment of the seed. Coatings can protect the rhizobia and provide a microenvironment for quick nodulation, insuring good seed-soil contact. This improves the movement of water to the seed, and increases the seed weight and size, which improves seed plantability. Treating the seed with a precise loading of pesticides and /or fungicides, supplying of growth regulators, incorporating hydrophilic and/or hydrophobic materials in the coating regulates water imbibition and germination, and adds beneficial elements and micronutrients to the seed. Indeed the future of seed coating may develop into a prescription approach – coating the seeds with the necessary elements to fit the needs of the field and the crop for optimum growth.

Currently Summit Seed coatings has a patent for a specialized coating for use in high ph soils. This has been a joint effort between Summit Seed Coatings and a seed company located in Idaho. The results have shown a significant improvement in university research trials and have been especially beneficial in farm trials. This product is marketed under the Apex Plus Coating name and

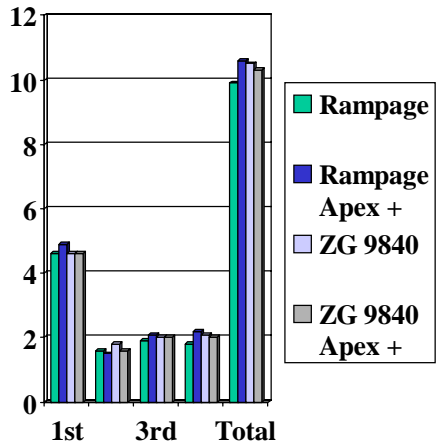
Table 1. University of Idaho Seed Coating Study



- Seeding Rate 16 # per Acre Pound for Pound
- Raw Preinoculated
- Apex Plus
- Two Varieties
- Apex Plus Significantly Higher at .05
- Spring Seeding

Table 2. University of Idaho Seed Coating Study

Mico Rhizo brand name (Tables 1-3).



- Seeding Rate 16 # per Acre Pound for Pound
- Raw Preinoculated
- Apex Plus
- Two Varieties
- Fall Seeding

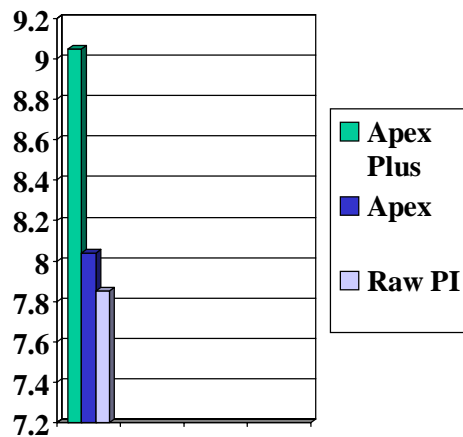
High pH soils are not a problem for Kentucky farmers, who generally have more problems with low pH soils. This is probably the number one problem seen when looking at a stand problem or establishment problem. It is extremely important to get the pH of the soil between six and

seven before planting. Summit Seed Coatings has started research with a southern university this past fall, to do an initial screening of different products that can be added to the seed

coating aiding in establishment and nodulation in low pH soils.

This is being done in lab tests at this time and will move out to field trials if any products look promising. We are planning to have a product commercially available in two years, if the research goes favorably.

Table 3. Utah State University Seed Coating Study



- Seeding Rate 16 # per Acre Pound for Pound
- Raw Preinoculated
- Apex
- Apex Plus
- Yield per acre

Another area that I feel will benefit Kentucky alfalfa growers will be the addition of Micronutrients and plant growth regulators to the alfalfa seed coating. W-L Research and Caudill Seed are applying 3-D growth supplement to their alfalfa seed at this time. This was started spring of 2004 and had favorable field results and testimonies. We look for this to expand and we look for more micronutrients to be used. We also see the potential for the super absorbent starches and polymers to be added to the coating.

These starches and polymers can greatly increase the water holding capacity of the seed and the germination zone to increase germination and seedling survival.

The future holds many new possibilities for alfalfa seed coatings. The coating of the future may be a prescription coating based on your farm, its soil condition, and the weather and climate conditions at the time of planting. Summit works with several Alfalfa seed companies and farmers that want prescription seed coatings for their farms at this time. I foresee more of this in the future, but to make this work it takes lead-time of three–six months to bring all the logistics together. By working on this on a small scale we should be able to reduce lead times considerably and make prescription seed coatings a reality.