YELLOW JACKET®

ENHANCED SEED COATING

BARENBRUG

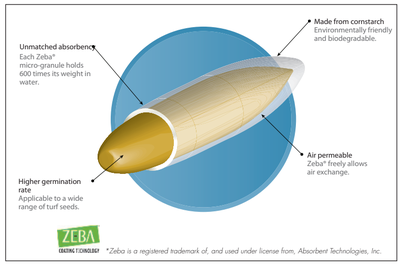
Great in Grass®

YELLOWJACKET
ENHANCED SEED COATING

Better Turf With Less Water

WHAT IS ENHANCED SEED COATING?

Barenbrug is recognized as the world leader in innovative grass seed coatings. The Barenbrug advantage in seed coating technology includes the utilization of a worldwide network of research stations to create coatings that enhance seed performance and turf characteristics.



*Zeba is a registered trademark of, and used under license from, Absorbent Technologies, Inc.

Barenbrug currently markets proprietary coated products in the United States as well as operating coating facilities in Argentina, Australia, China and New Zealand.

Yellow Jacket®, Barenbrug's proprietary seed coating technology, utilizes Zeba® super absorbent technology to produce a coating that can hold up to 600 times its own weight in water. Research trials at the University of New Mexico demonstrate that seed coated with Yellow Jacket established faster and required less water. These results are critical as water continues to become a precious global commodity. Yellow Jacket simultaneously helps seed thrive while conserving water.

Besides the Zeba technology, Yellow Jacket also includes DormBreaker™ technology. DormBreaker, developed by Barenbrug in Australia, greatly assists in quickly breaking seed dormancy.

UNIQUE COATING WITH OUTSTANDING PERFORMANCE

Numerous independent university tests have proven grass seed enhanced with Yellow Jacket technology greatly outperforms raw seed.

Now, after several years on the market, Yellow Jacket has proven itself a key to successfully establishing turf by our customers in some of the most demanding applications. Yellow Jacket can be found on all major cool and warm season grass seed species including tall fescue, perennial ryegrass, annual ryegrass, bentgrass, Kentucky bluegrass and Bermudagrass.

The image to the right shows the difference between a Yellow Jacket coated seed (left) and an uncoated seed (right). The Yellow Jacket coating holds all the components to help improve germination and turfgrass establishment.

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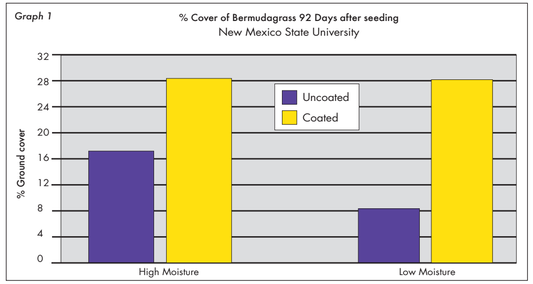
THE PROOF IS IN THE COATING

Establishment Of Coated vs. Uncoated Seed — New Mexico State University

Barenbrug conducted two extensive studies on seed coating with Dr. Bernd Leinauer at New Mexico State University. Bermudagrass coated with Yellow Jacket coating showed improved germination and establishment over uncoated seed. Graph 1 shows the results from this trial. The high moisture trial was set at 98 percent of evapo-transpiration while the low moisture trial was set at 56 percent of evapo-transpiration. This trial work indicated the coated seed establishes faster and maintains ground cover better than the uncoated seed.



Fungicide Stability On Coated Seed — The Ohio State University

Pam Sherratt, The Ohio State University, conducted trials with multiple grass seed coatings. Findings show that Yellow Jacket provided multiple advantages, even for fast establishing grasses like perennial ryegrass and turf type annual ryegrass. Yellow Jacket coated seed was not as disease prone as the uncoated entries, particularly when the coating contained a fungicide. In traditional applications fungicides commonly wash off the seed quickly and are of limited benefit. Barenbrug's coated seed proved to hold the fungicide longer.

Yellow Jacket Coating Field Study — North Carolina State University

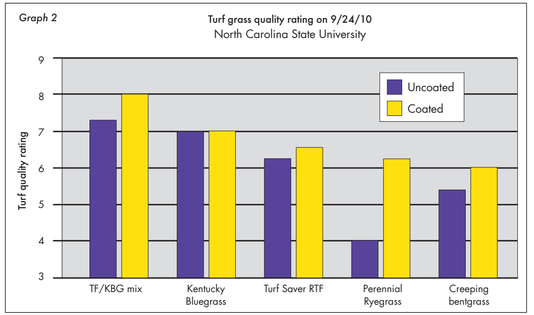
North Carolina State University conducted a field study to measure the effect of Yellow Jacket seed coating on the germination and establishment of turfgrasses. The germination and establishment conditions in this trial were ideal. Germination blankets were used and ample water was applied for both the coated and uncoated seed. In this trial limited differences were measured in the germination performance of coated and uncoated entries. This trial again shows that Yellow Jacket coating provides the insurance necessary in low moisture and drought conditions to prove its performance in moisture and drought stress conditions.

Also of interest in this trial is the turf quality data after establishment. Most all coated entries exhibited improved turf quality compared to uncoated seed. See Graph 2 for the different turf quality ratings on September 24, during the heat of summer and almost a year after planting.

Several key benefits of Yellow Jacket coating were identified :

- After establishment was complete coating provided significant improvements in turfgrass density, disease impacts and quality over several rating dates, especially in the perennial ryegrass
- Coating significantly improved density on 8/27 and 9/24 observation dates
- Coating treatments improved disease ratings when averaged over two summer ratings dates
- Coating treatments significantly improved turfgrass quality when averaged over seven rating dates

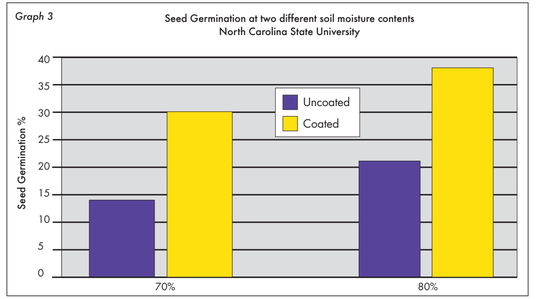
DON'T TAKE OUR WORD FOR IT



Controlled Environment Study — North Carolina State University

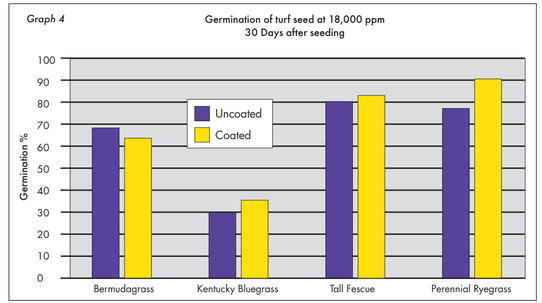
North Carolina State University performed trials in a phytotron controlled environment facility to compare Yellow Jacket coated seed with uncoated seed. The main purpose of this trial was to look at germination and establishment at different soil moisture levels.

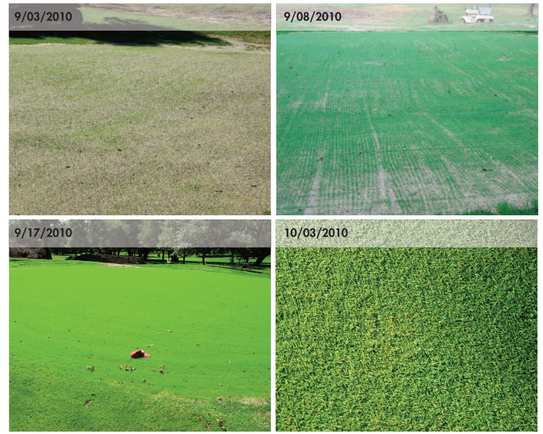
This trial proved that the germination percentage of the Yellow Jacket coated seed (Kentucky bluegrass) increases dramatically compared to raw seed under limited moisture conditions. Graph 3 shows percentage of seed germination between coated and uncoated seed 28 days after seeding. With Yellow Jacket coated seed germination success rates increase significantly compared to traditional uncoated seed.



Germination Under Saline Conditions — New Mexico State University

A study was conducted at New Mexico State University during fall 2009. A high water salinity concentration was used to determine germination rate of four turfgrass species. The experiment was conducted using AOSA rules for testing seeds. Graph 4 shows the germination percentages measured 30 days after planting. 18,000 ppm (parts per million) is high saline water. Ocean water contains about 35,000 ppm.





Time lapse photography shows how quickly Yellow Jacket coated bentgrass establishes all while reducing water usage. Pine Lakes Golf and Tennis Club in Lincoln, Nebraska. Pat Jones, Superintendent was mowing at ½" 3 weeks after sowing.

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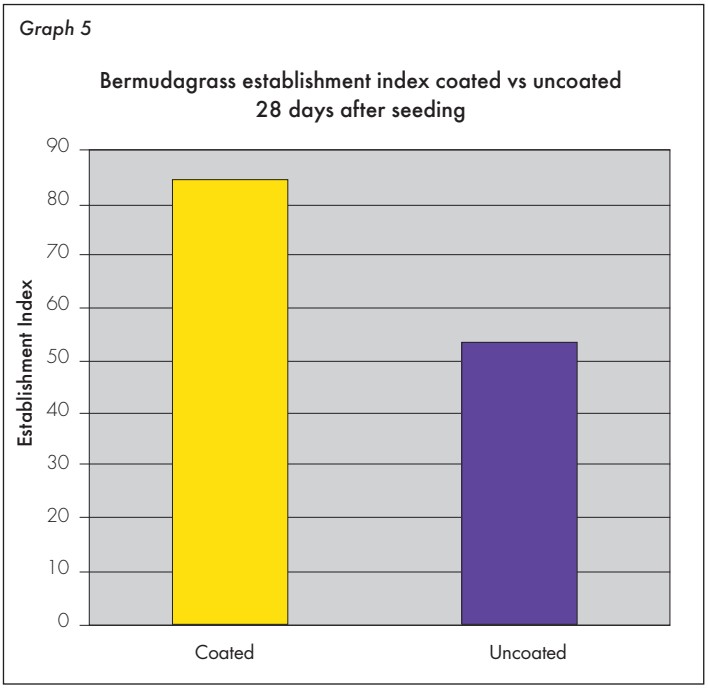
MAKING THE BEST EVEN BETTER

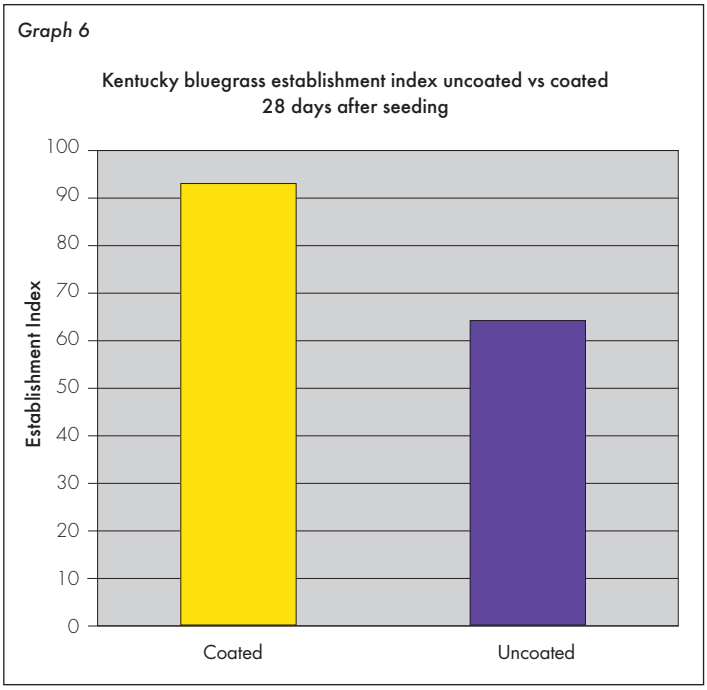
Effect of Yellow Jacket with DormBreaker™ on Turfgrass Seed Germination and Establishment.

An intensive trial was conducted at Barenbrug USA's Research Center in Albany, Oregon. Several grasses were coated with Yellow Jacket in combination with the newest ingredient, DormBreaker. The unique DormBreaker technology exhibits impressive effects on improving germination and establishment. Graphs 5 and 6 below show the establishment index of coated versus uncoated bermudagrass and Kentucky bluegrass. The coated seed in both trials exhibited much better establishment than the uncoated seed.

Graph 5



Graph 6



DormBreaker is a unique combination of proprietary products that help break seed dormancy. It has been proven through Barenbrug's research both in Australia and the USA that DormBreaker and Zeba are technologies that can be used in combination in the Yellow Jacket seed coating process to provide unparalleled advantages in the turf seed industry.

RPR with yellow jacket has performed extremely well under Metacomet's heavy play conditions and establishes very rapidly. I am very pleased with the results I have gotten with RPR and Barenbrug products in general.

- Paul Jamrog, *Superintendent, Metacomet Country Club*

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BENEFITS OF YELLOW JACKET ENHANCED SEED COATING

- ☐ Less water needed for establishment (30 percent less)
- ☐ Faster and improved establishment
- ☐ Better turf quality
- ☐ Coating enhances uniform seeding
- ☐ Coated seed is heavier improving travel through established turf canopies
- ☐ The yellow coated seed is easy to visually monitor during application
- ☐ Apron® (fungicide) adds additional insurance for successful establishment
- ☐ Proven performance even in the most demanding applications

AVAILABLE SEED WITH YELLOW JACKET

- ☐ Water Saver® Pro - Elite tall fescue blend
- ☐ Turf Blue™ blends - Elite bluegrass blends
- ☐ Bentgrass - Tee-2-Green and Barenbrug varieties TEE 2 GREEN
- ☐ Bermudagrass comes standard with Yellow Jacket
- ☐ RPR® - Regenerating Perennial Ryegrass
- ☐ Fine fescue
- ☐ Perennial ryegrass
- ☐ Turf Saver RTF - Rhizomatous Tall fescue

This season at Kettle Hills we have removed trees from the golf course. We used RPR with Yellow Jacket to re-establish these areas and found the seed used less water and germinated/established faster. We also found that because of the fast germination/establishment of RPR with Yellow Jacket it was able to choke out weeds and provide a superior stand of turf. Because of these characteristics RPR with Yellow Jacket is our new favorite seed.

Jeremy Seiler (Left) *Superintendent* and
Lee Suwakski (Right), *Assistant Superintendent*

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