

PIONEER® Brand

1155

ALFALFA
HAY INOCULANT



PRODUCT USE:

For use on small square bales between 15 and 25% moisture; large round bales, 13-20% moisture; and large square bales, 13-18% moisture.

KEY STRENGTHS/BENEFITS:

- Helps reduce weather risk.
- Allows earlier baling.
- Ability to bale at higher moisture helps retain more alfalfa leaves.
- Improves protein yield per acre by retaining more leaves.
- Alfalfa baled with more moisture is softer and more palatable.

FEATURES:

- 1155 comes in both a water soluble form and a dry flowable granular form.
- Water soluble 1155 is available in two package sizes: (1) A 5x5 carton containing five 20g bottles. Each bottle treats 5 tons of baled alfalfa hay when mixed with 5 gallons of water (application rate of one gallon of solution per ton of hay). (2) A 100g bottle which treats 25 tons of baled alfalfa hay when mixed with 25 gallons of water (application rate of one gallon of solution per ton of hay).
- Dry granular 1155 comes in two package sizes: (1) A 20-lb. bag which treats 10 tons of alfalfa hay (application rate 2 lbs./ton). (2) A 50-lb. bag which treats 25 tons of alfalfa hay (application rate 2 lbs./ton).
- Non-corrosive, non-toxic.
- Safe and easy to handle.
- Water soluble product contains a dechlorinator. Can be mixed with chlorinated water.
- Backed by extensive field research.
- Easy to mix and apply.
- Cost-effective.

1155 USE AND APPLICATION:

- Use only on hay containing at least 80% alfalfa.
- May be applied at the swather or at the time of baling.
- When using the soluble product, set nozzle(s) such that inoculant is applied in the throat of the baler, or if applying at the swather, direct spray behind the cutter bar.
- Avoid spraying at a pressure greater than 30 PSI to avoid bacterial injury.
- Make sure all sprayers have been thoroughly cleaned prior to mixing.
- 1155 is a dried *Bacillus pumilus* fermentation product. These live bacteria were selected specifically for use on alfalfa hay. Do not use on silage. This product is not a drying agent (desiccant).

1155 BALING MOISTURE RECOMMENDATIONS:

<u>Bale Type</u>	<u>% Moisture</u>
Small square	15-25*
Large round	13-20**
Large square	13-18**

* For small square bales, decrease baling moisture by 1% for every lb./cu. ft. increase in bale density above the 10 lb./cu. ft. level.

** For large round bales and square bales, decrease baling moisture by 1% for every lb./cu. ft. increase in bale density above the 14 lb./cu. ft. level.

To calculate bale density, use the following formulas:

Small square bale density (lbs./cu. ft.) = Bale weight (lbs.) ÷ (length X width X height ÷ 1728)
(Note: Bale dimensions in inches.)

Large square bale density (lbs./cu. ft.) = Bale weight (lbs.) ÷ (length X width X height)
(Note: Bale dimensions in feet.)

Large round bale density (lbs./cu. ft.) = Bale weight (lbs.) ÷ (3.14 X 1/2 of diameter X 1/2 diameter ÷ 1728)
(Note: Diameter measurement in inches.)

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HAY INOCULANT CONTINUED ...

TIPS FOR STORING 1155 TREATED HAY:

- Air movement is critical. Provide ample air circulation. Do not store in tightly sealed mows or sheds.
- Stack bales with cut ends up and alternate mow layers at right angles.
- High density bales (over 15 lbs./cu.ft.) dry slower. Provide adequate air ventilation. Consider welding a "hay spike" on the baler plunger to form a 1" ventilation hole down the middle of the bale.
- Hay dries from the outside of the bale or stack towards the center. To speed drying, maximize hay surface area exposed to air.
- Stack in "mini-stacks" of not more than one ton of hay. Provide at least one foot of air space between the mini-stacks.
- Early spring and late fall cuttings dry more slowly. Providing ideal drydown conditions is especially important for these cuttings.

Following these storage recommendations is a small inconvenience when valued against the improved leaf retention and higher quality hay attained with use of Pioneer® brand 1155 hay inoculant.

MANAGEMENT RECOMMENDATIONS:

- Make sure hay baled above 18% moisture has adequate ventilation during storage to allow moisture to escape the bale.
- If possible, allow hay baled above 18% moisture two or three days to cure before it is stacked.
- If 1155 solution is allowed to set overnight or for an extended period of time, agitate the tank and check the applicator filter screen to make certain it is clean. Do not mix up more 1155 than can be used in 24 hours.
- Premix water soluble product in individual bottles by adding an equal volume of cool water and shaking to dissolve before adding to applicator water tank.

- Do not stack high-moisture hay in direct contact with dry hay until the newly harvested hay has lost its moisture. This moisture could migrate and cause spoilage in the dry hay.
- When storing large bales, do not stack or cover them until they are fully cured.
- Storage plays a big role in the curing process of 1155-treated hay. Every 70 pound bale baled at 25% moisture rather than the typical 15% contains an additional 7 lbs. of water that must eventually escape.
- Some first-time 1155 users are disappointed with the color of the inoculated hay. For many years, producers have judged the quality of hay by its green color without regard to nutritional analysis. Using 1155 may cause the hay to appear olive or army green during storage. This loss in color is the result of a chemical change in the plant pigments, and is not the result of heating as many producers believe. The loss in color of 1155-treated hay has no effect on its nutritional value. Color change is directly related to the rate of moisture removal in the hay. The faster the hay stabilizes, the greener the bale remains. Bale density and ventilation play a big role in preserving color. If color is a major concern to the hay producer, he or she may follow these recommendations:

1. Install a bale spike on the baler (small rectangular). The spike will penetrate the center of the butt end of the bale, leaving an air pocket. Air will circulate more easily through the bale and help reduce moisture content.
2. Install ventilation tubing or mow dryers in stacks for added ventilation.

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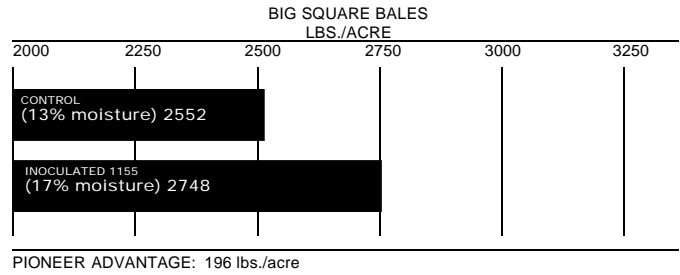
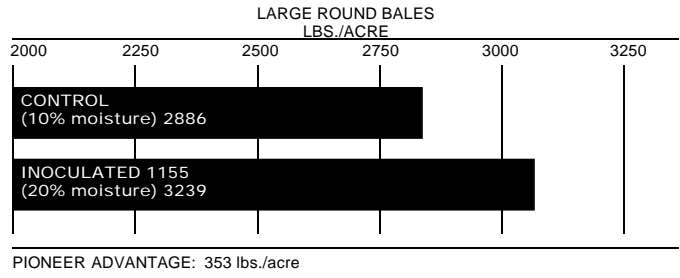
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HAY INOCULANT CONTINUED ...

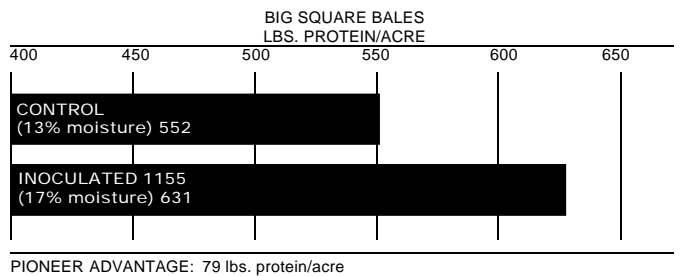
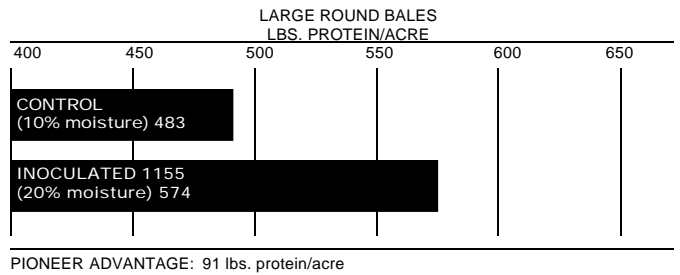
- If the producer is concerned that color loss is due to heat damage, the hay can be tested for bound protein or acid detergent fiber insoluble nitrogen (ADIN). If the ADF-nitrogen is greater than 15% of the total nitrogen, the hay has undergone some heating. This hay will generally be tannish-brown and may have a slight tobacco odor. 1155-inoculated hay may appear olive or army green, but the nutritional value of the hay has not been reduced.
- Some customers notice the presence of a white dust in 1155-inoculated hay. This condition often has been referred to as "smoke." Pioneer microbiologists have investigated and identified the causative organism, in most cases, as an Eurotium species. This organism is a fungi that is benign in nature. In other words, it does not appear to cause any negative (or positive) effects. Eurotium fungi are not thermophilic (heat-generating) organisms, and they do not produce any known mycotoxins in hay. Furthermore, the presence of Eurotium does not appear to have any adverse effect on the palatability of the hay. In feeding trials conducted by our research staff and tech service veterinarians, no adverse clinical effects were observed when the Eurotium-contaminated hay was fed to either mice or horses. While it appears that 1155 will not offer total protection against Eurotium fungi, it should be emphasized that 1155 does not in any way cause the problem. In our wide-area testing, we have isolated Eurotium in both wet and dry uninoculated control bales. Eurotium appears to be a part of the normal fungal population of hay. The benefits of using 1155 easily outweigh the risks associated with presence of Eurotium.

BALING AT HIGHER MOISTURE WITH 1155 INCREASES HAY YIELD*
HAY YIELD COMPARISONS
CONTROL VS INOCULATED WITH 1155



*Mean of five cuttings after 90 days of storage adjusted to 12% moisture.

BALING AT HIGHER MOISTURE WITH 1155 INCREASES PROTEIN YIELD*
PROTEIN YIELD COMPARISONS
DRY CONTROL VS INOCULATED WITH 1155



*Mean of five cuttings after 90 days of storage.



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