FREQUENTLY ASKED QUESTIONS

HARVXTRA with Roundup Ready® Technology

WHAT IS HARVXTRA® ALFALFA?

HarvXtra Alfalfa is the industry's first genetically enhanced alfalfa technology developed to maximize quality compared to conventional alfalfa at the same stage of maturity by reducing the amount of lignin in the plant.

WHAT ARE THE BENEFITS OF HARVXTRA ALFALFA?

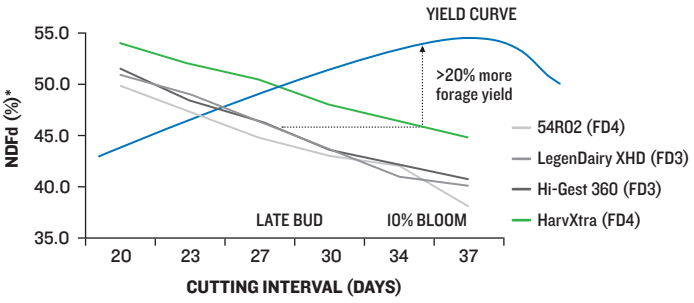
HarvXtra Alfalfa gives growers the ability to better manage the yield-versus-quality tradeoff. It offers more flexibility in harvest schedules to achieve improved forage quality or greater yield potential when compared to conventional alfalfa at the same stage of maturity.

WHAT WILL HARVXTRA ALFALFA DO FOR GROWERS?

The HarvXtra Alfalfa trait provides unprecedented flexibility by widening cutting windows, which gives growers the option to:

- Maintain their normal harvest schedules for higher-quality forage, or
- Delay harvest by 7 to 10 days for increased yield potential without sacrificing forage quality, compared to conventional alfalfa at the same stage of maturity.
  - The ability to delay harvest may give growers the option to decrease the number of cuttings over a growing season, which can reduce harvest costs and potentially improve the life of the alfalfa stand.

DELAY HARVEST FOR INCREASED YIELD POTENTIAL WITHOUT SACRIFICING QUALITY



WHAT IS THE DIFFERENCE BETWEEN HARVXTRA ALFALFA AND CONVENTIONAL ALFALFA DEVELOPED FOR IMPROVED QUALITY?

Genetically enhanced HarvXtra Alfalfa fundamentally changes the relationship between forage quality and stage of maturity by modifying lignin content beyond what is possible with conventional alfalfa breeding techniques.

- HarvXtra Alfalfa has on average 16 to 20 percent* less lignin and 14 to 18 percent* higher neutral detergent fiber digestibility (NDFd) and relative forage quality (RFQ) than conventional alfalfa harvested at the same stage of maturity.
- Since there is little genetic variation in lignin content in conventional alfalfa, breeding for increased digestibility is limited. Selection for improved quality often results in a decrease in forage yield potential, which is not seen in HarvXtra Alfalfa.

I HEAR THERE IS A YIELD DRAG ON HARVXTRA ALFALFA. IS THIS TRUE?

No. Yield performance is comparable to elite alfalfa products currently on the market.

IF I PLANT HARVXTRA ALFALFA, HOW DO I CUT THE REST OF MY CONVENTIONAL ALFALFA ON TIME?

In the transition years, you may choose to harvest all alfalfa on the same schedule and store HarvXtra separately for use with the fresh and/or high-producing cow groups. Alternatively, you can mix HarvXtra and conventional alfalfas in the same bunker or pile by layering to increase the overall forage quality when forage is mixed on feedout. An option on first cutting is to harvest the conventional alfalfa acres first and the HarvXtra Alfalfa acres last, which could provide a window of more consistent forage quality from the entire cutting.

MY NUTRITIONIST TOOK A SAMPLE AND FOUND NO QUALITY DIFFERENCE BETWEEN HARVXTRA ALFALFA AND CONVENTIONAL ALFALFA. WHAT DOES THIS MEAN?

Current near infrared reflectance (NIR) forage analysis prediction equations may not accurately predict the improvement in quality that HarvXtra Alfalfa offers. If NIR equations of laboratory do not include high-quality samples, then wet chemistry lab analysis or Calibrate® high-quality forage analysis are better options to help

accurately predict fiber values. Use NDFd or RFQ parameters to compare forage quality. Reflective feed value (RFV) does not include fiber digestibility in the calculation. Review the sample analysis report for Ash, neutral detergent fiber (NDF) and NDFd values. An increase of I percent of Ash can reduce RFQ. NDF is a good indicator of plant maturity. Comparing a delayed cutting of HarvXtra Alfalfa to a normal cutting of conventional alfalfa results in very similar RFQ values (at higher yield).

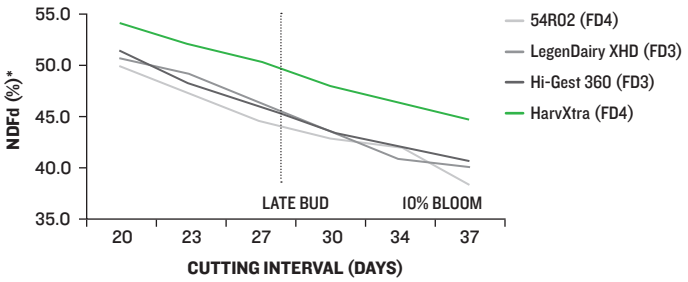
IS THERE UNIVERSITY DATA RELATED TO HARVXTRA ALFALFA?

In spring 2015, six universities (The Ohio State University, Michigan State University, Pennsylvania State University, Kansas State University, University of California, University of Wisconsin) established field trials to evaluate yield and nutritive value over time of HarvXtra Alfalfa compared with conventional varieties. HarvXtra Alfalfa maintained lower lignin content as well as greater NDFd and RFQ than conventionally bred varieties during the seeding year. HarvXtra Alfalfa also maintained high nutritive value for up to 10 days longer than conventional high-quality alfalfa varieties and produced greater yields when compared at similar nutritive value levels.

IS THERE FEEDING STUDY DATA ON HARVXTRA ALFALFA IN COMPARISON TO CONVENTIONAL?

Yes, 20 HarvXtra Alfalfa on-farm feeding demonstrations were planted and harvested in 2016. Dairies from South Dakota to Vermont were included with herd sizes from <100 to >2,000. Alfalfa was segregated at harvest and stored to compare feeding and conventional alfalfa. Data were collected from haylage/hay prior to feeding and compared with forage intake and milk production on a 4-week, off-on-off feeding period. Data have been summarized from all locations that were able to complete the demonstration, and results indicate that the technology is performing as expected. HarvXtra Alfalfa has shown to feed similar to conventional alfalfa when fed at the same forage quality level. What the HarvXtra Alfalfa trait gives you is the opportunity to produce higher-quality forage than conventional alfalfa harvested at the same maturity. The flexibility to maintain a 28-day harvest schedule for higher-quality forage or delay harvest by 7 to 10 days to maximize yield potential without sacrificing quality has proven to be the most valuable.

MAINTAIN SCHEDULE FOR INCREASED QUALITY (NDFd)



I FEED BROWN MIDRIB (BMR) CORN SILAGE; HOW WILL HARVXTRA ALFALFA WORK WITH BMR CORN?

HarvXtra Alfalfa can work well with BMR silage (corn or sorghum). Many BMR silage users will consider harvesting HarvXtra Alfalfa for the delayed cut/yield option. By delaying harvest, it allows the plant to mature and increase in NDF (providing more effective fiber) but retain good digestibility (NDFd). Thirty-five-day cut HarvXtra Alfalfa will have similar NDFd and higher NDF values when compared to 28-day-cut conventional alfalfa.

IS LODGING A PROBLEM WITH HARVXTRA ALFALFA?

While any harvest delay may increase incidence of lodging (especially on first cutting), there is no increase in HarvXtra Alfalfa lodging over today's commercial varieties managed similarly.

WHERE IS HARVXTRA ALFALFA AVAILABLE?

HarvXtra Alfalfa with Roundup Ready® Technology is available across the United States.

Growers must confine any product produced from HarvXtra Alfalfa with Roundup Ready Technology seed or crops (including hay and hay products) only to United States domestic use. Growers may plant HarvXtra Alfalfa with Roundup Ready Technology anywhere in the United States with the following states subject to execution of a Seed and Feed Use Agreement: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

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* NDFd — four locations (IA, ID, WA and WI) over two years.