Alfalfa: Has Its Time Come?

by Brent Johnson, Syngenta Alfalfa

Alfalfa has recently made headlines after a much anticipated judicial ruling. On June 21, 2010, the Supreme Court reversed a lower court injunction that prohibited the selling and planting of genetically modified alfalfa. The high court's recent decision shifts regulatory authority of biotech alfalfa back to the U.S. Department of Agriculture (USDA) and the Animal and Plant Health Inspection Service (APHIS). Most in the agriculture industry expect the USDA to complete the necessary Environmental Impact Statement (EIS) quickly to make the biotech crops available in time for 2011 spring planting. This is great news for growers as they can then rely on these important and beneficial technologies to increase their alfalfa yields.

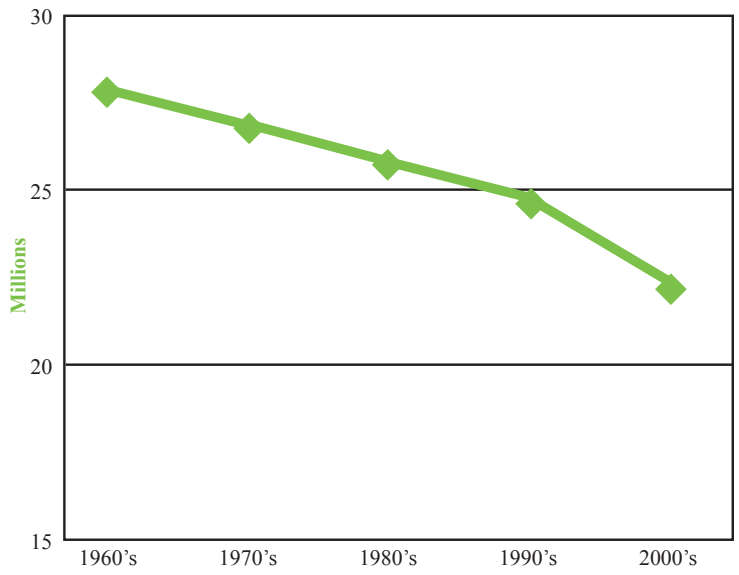
Alfalfa Benefits

Even though alfalfa is the fourth most abundant crop in the United States, it has suffered from a reputation as a low-technology crop with few advantages and low yields, when compared to corn and soybeans. As alfalfa acres have steadily declined over the past 50 years, alfalfa breeding companies have eagerly anticipated the approval of biotech alfalfa to renew interest in the crop.

With deregulation, alfalfa growers will have an opportunity to take advantage of this new wave of technology that has benefited corn and soybean crops for years. With the introduction of biotech alfalfa into their fields, growers may someday benefit from technologies beyond herbicide resistance. New traits may include increased biomass yield, modified lignin, and improved water use efficiency, among others.

Additionally, alfalfa crops help protect the environment and increase the sustainability of operations. When used in crop rotations, alfalfa reduces erosion, aerates soil and can provide up to 150 units of N after removal of the stand according to University of Minnesota research. Alfalfa also can provide a break in rotation that can reduce insecticide use as well as soil erosion during the established years.

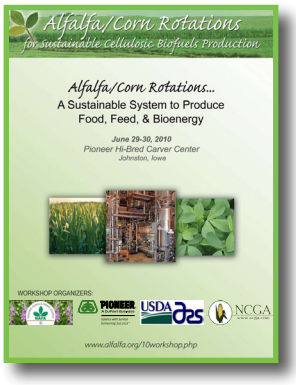
Figure 1. *U.S. harvested alfalfa hay acs (USDA National Agricultural Statistics Service).*



The Future of Alfalfa: Cellulosic Ethanol

Recently, the National Alfalfa and Forage Alliance (NAFA) along with the National Corn Growers Association (NCGA) sponsored a symposium to discuss the potential benefits of an alfalfa/corn rotation as part of a holistic farm system for feed and fuel *(for more information regarding the workshop, or for a copy of the proceedings, visit www.alfalfa.org)*. Corn following alfalfa can potentially provide a 10-15% increase in grain yield according to University of Wisconsin research.

Most importantly, growers should consider alfalfa as a source for cellulosic ethanol, a biofuel produced from wood, grasses, or the non-edible parts of plants. Cellulosic ethanol, part of the Environmental Protection Agency's (EPA) overall renewable energy plan, is expected to provide between 6.5 and 25.5 million gallons of ethanol this year alone according to an EPA publication from July 20, 2010.



Alfalfa growers may soon have an opportunity to take advantage of a new wave of technology.

As part of a farm system for feed and fuel, alfalfa leaves would be stripped and used as a feed source while the stems would be used to process ethanol. According to John Miranowski, professor of Economics at Iowa State University, alfalfa is competitive with other potential cellulosic biofuels. Early studies have even shown a 30% increase in efficiency of alfalfa when using biotech varieties designed for ethanol use.

With biotech traits, cellulosic ethanol potential and environmental benefits, alfalfa's time has definitely arrived and its future is certainly bright!

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Photo courtesy of Forage Genetics International.