

WHAT ARE THE KEY ELEMENTS TO IMPLEMENT COEXISTENCE BETWEEN GE AND NON-GE ALFALFA?

By Dr. Charles Benbrook¹

SPEAKER BACKGROUND

I have analyzed emerging and commercial GE crop technologies for over 20 years. I raised alfalfa hay commercially in Maryland from 1983-1990. I was asked to join the Roundup Ready Alfalfa Working Group convened by USDA in December 2010 to discuss options for the deregulation of RR alfalfa, and enjoyed contributing to that process. I was asked by Secretary Vilsack to serve on the new AC 21 agricultural biotechnology advisory committee, and just participated in our second meeting in D.C. I currently serve as the Chief Scientist, The Organic Center. I have done several reports on the impacts of GE crop technology on pesticide use and farm level costs and returns. For the last 13 years, I have spent an average \$800 a month for animal feed made predominantly from alfalfa.

HOW WOULD YOU DEFINE COEXISTENCE?

The ability of all farmers to ply their trade without the actions of one group of farmers adversely impacting others, and when such impacts occur, the impacted farmer is made whole through a non-adversarial process. The concept of coexistence applies to near-term, current-season agricultural operations, as well as the future ability of all farmers to share a landscape without the actions of one group adversely impacting the other.

IS COEXISTENCE POSSIBLE?

Once a GE crop is approved and planted commercially, growers of the new GE crop and farmers not planting the new GE crop obviously coexist as long as they stay in business. The issues before us depend on how different parties characterize the essential ingredients to “meaningful” coexistence. “Meaningful” coexistence can be defined as existing when GE and non-GE farmers share a landscape –

1. Without major or widespread adverse impacts across the fence or down the road.
2. When there is a mutually acceptable and low-cost mechanism in place to make a farmer whole (or nearly so) when added costs or losses are incurred because of GE contamination in non-GE crops or seed.
3. The vast majority of actual, perceived, and potential problems are dealt with in a fact-based, professional basis without recourse to the courts nor high legal costs.
4. When and as circumstances arise that lead to a problem in a particular area, those in a position to prevent the problem from reoccurring in the future take the necessary steps to do so as part of their role and responsibility in sustaining meaningful coexistence over time.

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5. GE technology companies, GE farmers, and GE seed companies pledge to do whatever is necessary to prevent GE crop technology from eroding the options or economic viability of non-GE farmers, both in the near-term and over the long run.

There have been several past episodes of substantial costs being imposed on one group of farmers by the development and/or commercial release of a new GE variety, e.g. StarLink corn and Liberty Link (LL) rice. In each case, the adverse impacts were suffered by conventional farmers as a result of unwanted GE contamination in the conventional grain supply. AP triggered loss of foreign markets and subsequent reduced crop prices and farm income. In both cases, through different mechanisms, the farmers suffering the losses sought compensation roughly equal to their loss in income. Corn farmers have already been compensated for their StarLink-driven losses, while long-grain rice farmers impacted by the LL rice episode have been offered a settlement by Bayer equal to \$315/acre, or a total of approximately \$750 million.

The concepts and logic leading to a decision that certain farmers deserved compensation in the StarLink and LL rice episodes are directly relevant to today's debate over Roundup Ready alfalfa impacts on market access and prices for IP, non-GE alfalfa. In addition, similar concepts and reasoning were invoked to calculate the monetary damages paid per acre in these past episodes, and will likely be drawn upon in determining how monetary damages will be determined if/when AP in alfalfa seed or forages triggers loss of markets or income. This is, of course, fortunate, since the debate over RR alfalfa compensation will have precedents to draw upon and serve as guideposts for what ought to be regarded as fair and acceptable compensation.

WHAT ARE THE KEY POLICIES AND MECHANISMS NECESSARY TO IMPLEMENT COEXISTENCE BETWEEN GE AND NON-GE ALFALFA CROPS?

A commitment to maintaining a substantial supply and diversity of non-GE alfalfa breeding lines and seed supplies free of AP is important. Also important is a transparent, multi-stakeholder driven process and method of monitoring the level of AP in non-GE alfalfa breeding lines and seed. A commitment by all parties to deal with creeping contamination if and when it occurs, with USDA oversight of whether episodes of creeping contamination have been contained and reversed. A mutually acceptable compensation mechanism to cover added costs and lost income associated with or triggered by AP in non-GE forage and seed.

The above ingredients will likely be essential for meaningful coexistence to occur with any and all GE crops.

WILL THE INTRODUCTION OF ROUNDUP-READY ALFALFA INEVITABLY RESULT IN THE DESTRUCTION OF ORGANIC, EXPORT OR OTHER GE-SENSITIVE ALFALFA PRODUCTION?

Definitely not, *if* the major alfalfa value chains, trade associations, researchers, and the USDA pledge to work together to bring about the essential ingredients of coexistence. In fact, putting the core ingredients of coexistence in place will strengthen the alfalfa industry internally, while also enhancing the competitiveness of all sectors of the alfalfa industry in international markets.

Much of the world finds the infighting over GE crops a regrettable and unnecessary diversion. Any country that deals with the underlying issues in a cost-effective, professional, and respectful way will strengthen its brand in many markets. If the German car industry can promote with equal sincerity and effectiveness both Mercedes and Volkswagen, why can't the U.S. alfalfa industry find a way to promote GE, non-GE, and organic alfalfa?

IT IS LIKELY THAT COEXISTENCE WOULD MEAN THAT SOME GROWERS (BOTH GE-ADAPTING AND NON-GE) WILL HAVE TO ADJUST METHODS OR SACRIFICE CHOICES IN ORDER TO ACCOMPLISH THE BROADER GOAL OF COEXISTENCE. HOW SHOULD THAT BE DECIDED?

Yes, without question, some sacrifices in operating freedom will be necessary. There is near-unanimous agreement that significant and systematic BMPs will be essential in order to prevent the spread of AP across non-GE alfalfa breeding lines and seed. Many folks outside the alfalfa industry are nervous because there clearly is a wide range of views regarding whether today's BMPs and industry practices are going to be sufficient to prevent creeping contamination. Because of this, there must be an upfront pledge to augment BMPs if/when they are found to be inadequate.

A strong economic case can be made for exclusive RR alfalfa seed production zones, and exclusive, non-GE alfalfa zones where non-GE breeding lines and seed can be produced.

Isolation distances between commercial GE alfalfa fields and non-GE fields selling into AP-sensitive markets will need to be established.

There will be situations where farmers are called upon, if not required, to take whatever steps necessary to prevent a GE alfalfa field from going to seed.

BMPs will need to be continuously evaluated and improved to prevent seed mixing and contamination as a result of harvest operations, trucking seed from the field to seed cleaning and storage facilities, and throughout the rest of the value chain.

GE alfalfa, or any GE crop technology, will be judged by history as "value added" if the necessary BMPs and monitoring activities, and the compensation mechanism, can be implemented and managed on a self-sustaining basis, while also leaving profits on the table for the seed industry, growers, seed-forage brokers and companies, and those buying alfalfa forages.

IS ZERO CONTAMINATION OF ALFALFA HAY OR SEED POSSIBLE?

No, nor is it necessary. For meaningful coexistence to emerge, both sides of the debate need to get real. Those who believe fully in GE crops and want to move forward with minimal constraints and costs need to acknowledge that other forms of agriculture have an equal right to exist, and they should take comfort in the fact that keeping non-GE seed and alfalfa farmers whole need not cost much money nor crimp anyone's style, especially if GE farmers and companies are both smart and disciplined with the identification and implementation of preventive BMPs.

Those who see RR alfalfa as a grave threat need to stop overstating the risks and the magnitude of the consequences if low-level AP occasionally occurs in non-GE alfalfa forage and seed. I cringe when I

hear friends in the organic community make statements to the effect that the approval of RR alfalfa will make it impossible to produce organic milk, or will lead consumers to reject organic milk?

One might ask why supporters of organic farming make such outlandish and harmful assertions. How does a low-level of AP in some organic alfalfa hay or baleage threaten a kid drinking a glass of milk or the cow producing it? I am not aware of any science suggesting that it does. And if occasional, very low-level AP poses a grave threat to people drinking organic milk or cows on organic farms, what is likely to happen to the 95% of American milk drinkers and 98% of cows consuming a daily diet of GE feed, including GE alfalfa?

My gut sense is that backing off the over-heated rhetoric on both sides is a necessary but not sufficient condition for discovering the path to coexistence and moving along it.

HOW SHOULD THRESHOLDS FOR CONTAMINATION (WHETHER ZERO OR LOW LEVEL PRESENCE) OF GE-SENSITIVE ALFALFA PRODUCTION BE DECIDED?

Through a multi-stakeholder process that is open and participatory. The organic community is close to supporting what the Europeans regard as “technical zero” contamination – no GE seeds detected in a sample of 3,000 seeds, corresponding to a contamination level not in excess of 0.1% and likely either zero or very close to zero. Over the last six months, this threshold has been under active discussion between some major players in the organic dairy industry and parts of the alfalfa seed industry.

We are encouraged that some leading alfalfa seed companies feel that they can meet this threshold today for some of their seed production, and moreover feel they can refine their BMPs and adjust growing regions sufficiently over the next few years to ramp up production sufficient to meet market demand.

In a perfect world, we would pursue a process through which both domestic and international markets would coalesce around “none found in 3,000 seeds” as the basic threshold for non-GE, IP-alfalfa seed. We will never even have a chance at forging international harmonization until we get our own house in order, and join together in agreeing on a strict but achievable threshold here in the U.S.

SHOULD SUCH POLICIES AND MECHANISMS BE DETERMINED BY GOVERNMENT REGULATION OR BY INDUSTRY STANDARDS?

It is hard to imagine meaningful coexistence coming about in the absence of a major role, and commitment to cooperation, from growers, the trade, technology companies, alfalfa users, and the government. Clearly, the responsibilities and roles taken up by government will be constrained by resources and the political gridlock that plagues our nation today. But still, USDA can and must help make this happen.

I am virtually certain that if all parties came together and developed a thoughtful plan and roadmap to coexistence including some tasks and roles for the USDA, the Department would work very hard to find a way to make it happen. I am almost as certain that the Department has little patience and few resources to serve as a referee and occasionally peacemaker, if the status quo prevails.

HOW IMPORTANT IS A COEXISTENCE STRATEGY FOR ALFALFA GROWERS AND THE ALFALFA INDUSTRY?

Very, because alfalfa is bound to be an even more important and widely grown crop in the future, and because science and genetics has much to contribute to both alfalfa productivity and forage quality for all markets – conventional, non-GE, and organic. Alfalfa is the Queen of forages for good reason, and she deserves better.

GENERAL COMMENTS & CONCLUSIONS

Developing and implementing a meaningful coexistence policy framework for GE alfalfa is a rather simple and straightforward task, especially compared to any of the other daunting challenges that we are not working on today because we are here, in Sin City, discussing coexistence.

Those of us who participated in the RR Alfalfa Working Group were amazed by the substantial progress toward agreement that was made in just a few weeks of serious deliberations. With just a few more weeks, that Working Group probably would have produced a roadmap to meaningful coexistence that was 80%, maybe even 90% complete.

Reasonable and respectful people can pick up where we left off and rather quickly develop a plan that could lead to most of the essential ingredients of coexistence. Problems and pitfalls lurk on the sidelines, however, and will raise their ugly head, as they did as the Secretary moved toward his January 2011 decision to deregulate RR alfalfa.

One problem is that some people would rather fight than switch. Some people regard GE crops and technology as a systemic and uncontrollable threat so serious that the technology must be stopped at any cost. For these folks, this end justifies a wide range of means, including some divorced, for the most part, from reality, at least based on current “understanding” of how alfalfa plants grow and set seed.

Another problem is that many people associated with the biotech industry feel that there is little need to listen to the concerns of others, and even less to compromise, since they own the market and have been able to tilt the policy process in their favor whenever push comes to shove. Only the courts remain largely outside their ring of influence.

Other pro-GE advocates are worried that precedents set in establishing a coexistence framework for GE alfalfa, especially one that works and is acceptable in the alfalfa industry and among stakeholders, might be drawn upon or imposed in other areas, where the costs and challenges might be substantially greater. Corn and canola, for example, come to mind.

And last, there is a natural tendency on both sides to “load up” the debate over GE alfalfa coexistence with all the other divisive, worrisome, potentially costly issues that still plague us in this early stage of the GE crop era. Concentration in the seed industry. The emergence and spread of resistant weeds. Gaps in the regulatory process. A regulatory process that takes too long to reach closure. Creating jobs and sustaining export earnings. Restoring public plant breeding programs and capability. Feeding the world and the list goes on.

For all its strengths, assets, and capability, American agriculture is rapidly losing the ability to identify and work on behalf of the public’s interest. Those of us who want to restore this vital system attribute had better speak up now and join together with others willing to take some risks for a greater good.

NOTE ON THIS PUBLICATION:

*This article is published as a part of a panel discussion on Coexistence between Genetically-Engineered (GE) alfalfa and non-GE alfalfa held December 13, 2011 at Las Vegas, NV at the Western Alfalfa & Forage Conference. Each panelist was asked for their views on coexistence, guided by several specific questions. **Background:** As a general background, Roundup Ready alfalfa was first released in 2005, and subsequently the subject of a lawsuit which precluded further planting from 2007 through 2011, while USDA-APHIS conducted an Environmental Impact Study. A key component of both the lawsuit and the EIS was the question as to whether gene flow and contamination would harm non-GE growers. USDA-APHIS decided in 2010 that Roundup Ready alfalfa was safe for the environment and further plantings were authorized early in 2011. However, coexistence between divergent systems remains an important issue, particularly for organic growers, seed growers and companies, and exporters. Subsequent documentation and efforts to encourage coexistence and solve the issues between GE and non-GE production have been ongoing by farmers, companies, hay grower and seed groups, Universities, and government agencies.*