

Selection of Crops and Diseases to Consider

Don Huber provided some handouts to stimulate discussion about how to prioritize diseases of consequence. Should priorities be based on crops with a high value (e.g., over \$500 mil) or those planted over a large total area (e.g., over 500K acres)? How should factors, such as the ability to impact other aspects of the economy, or the ability to impact trade/markets, or the availability (or lack thereof) of substitutes factor into the prioritization?

What criteria should be used?

One individual felt the focus should be on bioterrorism...something intended to strike at our way of life. That is what has been the stimulus for all the discussion. It was noted that it's not just about causing disease—it's about affecting the US markets and economy. Mad cow is a good example. One diseased cow can cause a huge disruption in the food system. All it would take is one cow per year to shut down our beef industry. Similarly, sprinkling Karnal Bunt spores into wheat shipments once in a while would close off our wheat trade. The introduction of potato smut into one of our concentrated potato production areas could quarantine significant production potential even for domestic use. Things like this could isolate the US from its usual trading partners and is much easier to accomplish than starting a disease.

Regional criteria can have different scales. Corn in the Midwest represents a large scale. Grass seed in the Willamette Valley of Oregon represents a smaller scale. Garlic production in Gilroy, California represents an even smaller scale. In other words, is a target large or small, and what portion of the production would be impacted? Is the crop valuable enough to have a significant impact on the economy? Does the crop have strategic value? Is there potential for something to come in from outside as an exotic pest? Does it have impact magnification potential (e.g., foundation seed crops)? What is the deflection in the system and how long does it take to recover? How much time do we have to repair the damage before the market is lost? We can recover from most diseases, but loss of market share is harder to recover from.

Also need to consider differences between annual and perennial crops and the potential for massive ecological damage (e.g., SOD). Many soil-borne pathogens will persist in soil for very long times, and so have long-term effects. The nursery industry is aggregated around certain times (e.g., roses for Valentine's Day), so even a transitory problem can have a huge economic impact.

The scope of concern is more than just intentional introductions. We also need to be concerned with natural or inadvertent introductions and mutations of more virulent pathogens.

What diseases could be introduced (by any means) and deflect the status quo and take a long time to recover? Will we lose our market in that time? Fungicides can help manage a disease, but will not help with the trade issues. Trade issues sometimes are as much political as scientific and this needs to be considered. We also need to consider alternatives for managing introduced diseases that do not lead to destruction of the industry (e.g., citrus canker). Are there crops that should be targeted now to minimize the impact of a future disease introduction?

Summary points:

1. Is the crop valuable enough to have a significant impact on the economy (if pathogen causes production loss or trade disruption)?
2. Is it regionalized (e.g., garlic) or widely grown (i.e., a little or a big target)?
3. Is there a risk of something coming in from outside as an exotic pest?

4. Does the disease have impact magnification potential (e.g., foundation seed crops)?
5. How much time do we have to repair the damage before the market is lost?
6. Does the crop have strategic value?
7. Evaluate the modified list from the New Orleans meeting.