

NORTH DAKOTA LEGISLATIVE COUNCIL

Minutes of the

AGRICULTURE COMMITTEE

Wednesday and Thursday, July 10-11, 2002
Roughrider Room, State Capitol
Bismarck, North Dakota

Senator Terry M. Wanzek, Chairman, called the meeting to order at 9:00 a.m.

Members present: Senators Terry M. Wanzek, Bill Bowman, Duane Mutch, Ronald Nichols; Representatives James Boehm, Michael Brandenburg, April Fairfield, Rod Froelich, Joyce Kingsbury, Phillip Mueller, Jon O. Nelson, Eugene Nicholas, Dennis J. Renner, Earl Rennerfeldt, Arlo Schmidt, Ray H. Wikenheiser

Members absent: Senator Harvey Tallackson; Representatives Thomas T. Brusegaard, C. B. Haas, Edward H. Lloyd

Others present: See Appendix A

It was moved by Senator Bowman, seconded by Representative Mueller, and carried on a voice vote that the minutes of the previous meeting be approved.

GENETICALLY MODIFIED ORGANISMS

Chairman Wanzek said the committee members have received copies of letters from Mr. Steve Strege, North Dakota Grain Dealers Association; Mr. Jim Bobb, Grain Division Manager, Southwest Grain, Taylor; Ms. Nadine Bayer, President, Great River Organic Milling, Winona, Minnesota; and Congressman Earl Pomeroy. Copies of the letters are on file in the Legislative Council office.

Chairman Wanzek said Dr. Robert N. Wisner, Department of Agricultural Economics, Iowa State University, appears before the committee at the suggestion of the Dakota Resource Council.

Dr. Wisner said he has been involved in grain marketing for 35 years. He said the real issue from a marketing perspective is not whether genetically modified crops are safe but rather what customers think about those crops. He said in agriculture, unlike any other industry, the producer makes the decision about what to produce. He said in virtually every other industry the consumer determines what to purchase. He said genetic modification has some exciting possibilities for food production. He said those possibilities include enhancing the nutritional quality of food and enhancing our productivity.

Dr. Wisner said another perspective involves consumer acceptance of the product. He said right now a substantial number of international markets are concerned about genetically modified crops. He said

these include Europe, Japan, China, Korea, and Taiwan. He said those areas have had difficulty with food safety. He said those areas have had to deal with issues such as mad cow disease. He said mad cow disease occurred because the scientific community said it was safe to feed some species proteins to cattle. He said there is a distrust of the scientific community and of governmental regulatory procedures abroad.

Dr. Wisner said the parliament of the European Union took a first step on July 3, 2002, toward tightening of the genetically modified organisms labeling standard from 1 to .5 percent. He said the parliament will have to go through a variety of other steps before this legislation becomes law.

Dr. Wisner said a recent study conducted at the University of Georgia found that pollen from genetically modified canola could drift up to 1.8 miles. He said herbicide resistance spread to 63 percent of the fields within that range. However, he said, the percentage of genetically modified organisms found in those fields ranged from only .20 to .03 percent. He said the conclusion of the study was that this was not a significant amount.

Dr. Wisner said an Australian study found pollen from genetically modified canola could drift up to 1.86 miles. He said the study found that the amount of cross-pollination did not appear to diminish over that distance. He said the maximum distance for isolation is not known. He said it appears as though there is room for additional research in this area.

Dr. Wisner said the vice president of General Mills has stated that food manufacturers receive no marketing advantage from genetically modified organisms at this point. He said this does not mean that there might not be advantages in the future.

Dr. Wisner said 2001 hard red spring wheat exports are going to the European Union, Japan, Philippines, South Korea, Taiwan, and the Philippines. He said all of those countries have or are in the process of developing a labeling-by-genetic-origin program. He said those countries account for almost 80 percent of the wheat exports.

Dr. Wisner said North Dakota needs to determine what will happen if it institutes a moratorium and the other states and Canada do not follow suit. He said North Dakota produces nearly one-half of the

country's hard red spring wheat and nearly three-quarters of the nation's durum wheat. He said whether other states and Canada would follow North Dakota's lead with respect to a moratorium is unknown.

Dr. Wisner said consumer perception is a different issue from whether consumer perceptions are correct or scientifically based. He said some foreign sources are concerned about the close relationships between the regulators and those being regulated. He said other foreign sources are concerned about the lack of long-term health and environmental safety studies. He said there is concern that the effect of inserting a foreign gene into a crop is not known. He said it is not known if that action could create some toxins or some other unexpected results. He said foreign consumers are concerned about liability if something goes wrong.

Dr. Wisner said foreign consumers also have concerns about herbicide-resistant weeds, insect resistance to certain genetically modified crops, the impact that genetically modified organisms will have on beneficial insects and species that feed on such crops, and the long-term effect of having a highly concentrated global seed industry. He said there are only five major players in the biotech industry.

Dr. Wisner said producers in developing countries hold back some of their seed for planting during the following year. He said this will no longer happen. He said these are farmers who have very little income. He said there is also concern about traceability in food sources.

Dr. Wisner said there are 13 countries in eastern and central Europe that are positioning themselves for entry into the European Union. He said if all entered the European Union, there would be 37 countries that label by genetic origin.

Dr. Wisner said the European Union has a de facto moratorium on new genetically modified varieties. He said it is not known whether that status will change. He said both the European Union government and all member nations would have to approve new genetically modified varieties. He said it has been four years since this last happened. He said major food chains in Europe are requiring that genetically modified organisms be labeled. However, he said, they are also shifting to nongenetically modified organisms for their store brands. He said feed ingredient labeling has been proposed in the European Union, but to date, no action has been taken to move that proposal forward.

Dr. Wisner said there was a dip in soybean exports to the European Union in 2000-01. He said that was related to the genetically modified organism issue.

In response to a question from Senator Wanzek, Dr. Wisner said in 1997-98 there was a dip in United States exports of soybeans to the European Union because of increased exports from Brazil.

Dr. Wisner said South Korean processors are receiving nongenetically modified corn from China. He said China has been a major importer of United States soybeans. He said China imports 20 to 25 percent of all United States soybeans. He said China is doing research on genetically modified food crops and appears to see a market for nongenetically modified crops, including cotton and tobacco.

In response to a question from Representative Schmidt, Dr. Wisner said there is not a total loss of confidence in science. He said there is a loss of confidence in governmental regulatory processes in general. He said people recognize that science is an evolving process.

Dr. Wisner said StarLink corn was approved for animal feed but not for food or export. He said the channeling approach failed. He said there are ongoing discussions about who is responsible, about cross-pollination problems, and about processing plants that would have to be shut down if such an event were to occur again. He said there are a number of complicated legal issues.

Dr. Wisner said recently a number of Iowa producers have found conception problems in their swine herds. He said the common element seems to be the feeding of genetically modified corn. He said the problem could also have been a totally unrelated mold. He said the research is ongoing. He said when one farmer switched from genetically modified feed corn to nongenetically modified feed corn, the problem disappeared.

Dr. Wisner said Purdue University has found that cancer resistance was available through a genetically modified tomato. He said unexpected results, both positive and neutral, raise a concern about the existence of negative results as well. He said it does affect how consumers view the product.

Representative Nicholas said although international corn exports are off 12 percent, wheat exports are off 24 to 25 percent. He said farmers have voted with their pocketbooks and planted 75 percent genetically modified soybeans.

Dr. Wisner said not all export problems are related to genetically modified organisms. Representative Nelson said strong dollars and intentional trade barriers all affect our exports.

In response to a question from Representative Nelson, Dr. Wisner said the United States Department of Agriculture released on June 28, 2002, planted acreage for genetically modified crops. He said estimated that Iowa's corn crop consists of approximately 30 percent genetically modified corn. He said, nationally, about one-third of the corn crop is genetically modified. He said nationally about 75 percent of soybeans are genetically modified. He said the percentages vary state by state.

In response to a question from Representative Nelson, Dr. Wisner said the market impact is consumer-driven. He said the European Union

government is attempting to move toward genetically modified products, but the European Union consumers are lagging in that area.

Representative Brandenburg said he had a conversation in which a fellow farmer said he used and liked genetically modified corn and genetically modified soybeans. He said genetically modified seeds and crops enable farmers to control weeds that they have not been able to control economically. He asked if genetically modified products are so bad, why do farmers want them.

Dr. Wisner said weed control has been a major challenge in soybean production for many years. He said this past winter soybean prices were the lowest they have been since 1973.

Dr. Wisner said this year's export pattern is up 1.5 percent from last year. He said Japan is approaching stabilization. He said Japan is importing an increase of 41.2 percent of nongenetically modified sorghum. He said overall the export pattern is up a little bit over last year.

Dr. Wisner said on October 9, 2000, the Corn Refiners Association stated that using StarLink corn in their member facilities violates United States government registration for the product. He said there are a number of dry milling plants that may be able to use StarLink for ethanol if byproducts are used only for animal feed. He said this shows that there is a link between the international markets and their effect on national production.

Dr. Wisner said the odds of a StarLink scenario happening again appear to be relatively low.

Chairman Wanzek distributed to the committee a document entitled *Roundup Ready Wheat in Western Canada*. A copy of the document is attached as Appendix B. He said the authors of the document, Dr. Rene Van Acker, Dr. Anita Brule Babel, and Dr. Martin Entz, were asked to present testimony regarding the use of Roundup Ready wheat by the Northern Plains Sustainable Agriculture Society. He said the individuals, all of whom work at the University of Manitoba, were unable to appear before the committee, but they would present their testimony via speaker telephone.

Dr. Entz said research has shown that wheat pollen can travel over long distances. He said pollen from Roundup Ready wheat can be carried to adjacent non-Roundup Ready wheatfields. He said Roundup Ready wheat can become persistent in non-Roundup Ready wheatfields.

Dr. Van Acker said wheat could persist as a volunteer for up to five years. He said canola would persist as a volunteer.

Dr. Entz said in Manitoba canola is grown one out of every four years. He said wheat accounts for nearly 43 percent of the rotation. He said wheat is planted in Manitoba fields about one out of every two years.

Dr. Entz said it is known that pollen does affect adjacent organic fields. He said a zero tolerance for the Roundup Ready trait is impossible. He said fields will become increasingly infested with the Roundup Ready trait. He said this infestation will be slower under no-till practices because there is less selection pressure and no Roundup Ready application. He said the risks associated with Roundup Ready wheat far outweigh any benefits. He said no-till cropping will be threatened, as will the organic crop industry.

Dr. Van Acker said they have found there is movement between fields and also between seed lots. He said it is not sufficient to merely tell producers they can choose to use or not to use Roundup Ready canola. He said producers will incur additional costs to control volunteer plants regardless of whether they opt to use Roundup Ready canola. He said there is no reason to believe wheat will respond any differently.

Dr. Entz said many people, especially those representing the industry, will point to the economic benefits of Roundup Ready wheat. He said those benefits are not the same for wheat as they are for other crops. He said all farmers will end up having to deal with Roundup Ready wheat, regardless of whether they choose to plant the product.

Dr. Babel said once the Roundup Ready trait is released into the environment, it cannot be taken back. She said inexpensive weed control will no longer be an option. She said she suspects that within 5 to 10 years, it will be impossible to obtain organic certification of crops if a tolerance level of more than 1 percent is instituted. She said the pollen movement will be significant enough to impact the organic fields.

Dr. Entz said a rejection of Roundup Ready wheat should not be equated with a rejection of biotechnology. He said the genetically modified organisms need to be evaluated on a product-by-product basis.

In response to a question from Representative Nicholas, Dr. Entz said western Canadian organic producers have given up on canola because all the organic fields have been contaminated. He said the ability to grow organic soybeans has likewise been thrown into the question.

In response to a question from Representative Nelson, Dr. Babel said different wheat varieties have different levels of outcrossing. She said these characteristics tend to vary even within the same plant varieties. She said, depending on the weather, the outcrossing can be as high as 10 percent.

In response to a question from Representative Nelson, Dr. Van Acker said there is a significant effort to work toward registration of Roundup Ready wheat. He said there are confined outdoor trials that have been underway for a number of years. He said the research trials are being conducted in highly confined areas. He said he wonders what position the government should take with respect to Roundup Ready

wheat. He said to date it has been the government's position that everything should be tested. He said the government has not addressed the potential agonomic and economic problems.

Dr. Entz said he would like to see the trials stopped. He said last year a tornado hit a field and spread the product over a 12-mile area.

In response to a question from Representative Fairfield, Dr. Entz said once released there will be no possibility for zero Roundup Ready wheat. He said it will not be containable and it will have an impact on all producers.

In response to a question from Representative Fairfield, Dr. Van Acker and Dr. Babel agreed with Dr. Entz that once released there will be no possibility for zero Roundup Ready wheat.

Dr. Entz said there are pockets in western Canada where one can still grow nongenetically modified canola. He said canola is not the easiest crop to grow in organic conditions because it is susceptible to a variety of insects.

In response to a question from Representative Fairfield, Dr. Entz said the reality is that in the long term, if farmers in the United States elect to grow Roundup Ready wheat, Canada will get Roundup Ready wheat. He said there is a lot of movement of grain across the border. He said in the short term there might be some advantage to Canada if the United States allows Roundup Ready wheat and the Canadian government does not. However, he said, that will be a very short time period.

In response to a question from Representative Brandenburg, Dr. Entz said the province of Ontario has created a dual market for genetically modified soybeans and nongenetically modified soybeans. He said a premium is being paid for nongenetically modified soybeans. He said there is difficulty in maintaining a segregated product.

Dr. Van Acker said the strict tolerances, which are part of the organic market, will be harder to maintain in the future, especially as science improves its ability to detect contamination.

Dr. Babel said we are not in the position of having buyers who preferentially want genetically modified wheat. She said that means someone has to monitor the nongenetically modified crop to ensure that it meets the requirements of the market. She said the question is who will pay for this monitoring. She said she believes the costs will trickle down to all farmers, regardless of whether they plant genetically modified wheat or nongenetically modified wheat.

In response to a question from Senator Wanzek, Dr. Babel said even outside of the genetically modified organism discussion, "pure" has never been possible.

Dr. Entz said when the trait in question is something like resistance to Roundup, the lack of purity becomes a real problem.

Dr. Wisner said the problems associated with developing a dual-marketing system need to be considered--one for genetically modified products and one for nongenetically modified products. He said it is expensive to clean out elevator dump pits and handling systems. He said there is an elevator outside of Ames, Iowa, which is devoted exclusively to nongenetically modified soybeans. He said port facilities and conveyor systems would also need to be cleaned out after any commingling of genetically modified and nongenetically modified products.

Dr. Wisner said if there is a low volume that one is trying to segregate, the cost of so doing will be high. He said it can be done and it is being done.

Dr. Wisner said from a marketing perspective, the worst-case scenario is that the United States will lose one-half of its export market. He said the problem is consumer concern. He said over time, the consumer concern will diminish. He said there is much uncertainty with respect to foreign market acceptance. He said the Japanese and Korean governments' approval of genetically modified wheat is likely. However, he said, it is not known whether consumer approval will follow suit.

Dr. Wisner said the question is which is the greater risk--playing catchup after the imposition of a moratorium or incurring the risk of consumer rejection.

Dr. Wisner said right now there are five major biotechnology seed companies and, after an upcoming merger, there will only be four. He said there is concern about a potential monopoly in the industry.

In response to a question from Senator Bowman, Dr. Wisner said it is the position of Dr. Neil Harl that liability with respect to the contamination of organic farming is an area that is as yet uncharted. He said the issue will likely have to be settled in the courts.

In response to a question from Representative Brandenburg, Dr. Wisner said articles setting forth the economic impact of genetically modified products versus nongenetically modified products need to be examined to determine the method by which the conclusions were reached.

In response to a question from Representative Fairfield, Dr. Wisner said the perception in the consumer's mind is what counts, not necessarily the facts from a scientific standpoint.

In response to a question from Representative Nelson, Dr. Wisner said China has a zero-tolerance policy for genetically modified crops. He doubted that the Chinese market is consumer-driven.

In response to a question from Representative Mueller, Dr. Wisner said part of the issue that needs to be settled is whether significant benefits would be kept from farmers if North Dakota imposed a moratorium.

Senator Wanzek said the testimony raises serious questions regarding how a moratorium would be

enforced, unless it is done in all the wheat-producing states and in Canada simultaneously.

Dr. Wisner said the small elevators could, at least in the short term, take advantage of an opportunity to market nongenetically modified products. He said how long that opportunity will last is unknown.

In response to a question from Senator Wanzek, Dr. Wisner said it is too late for Iowa to consider placing a moratorium on genetically modified crop production. He said Iowa is too far down the road of genetically modified products. He said Iowa is now talking about pharmaceutical corn. He said Iowa grows mainly corn and soybeans. He said there are different issues surrounding crops that are grown to feed livestock and those that are grown to feed humans directly.

Dr. Wisner said there are some very positive things being developed in the area of genetically modified organisms, particularly with respect to pharmaceutical development. He said there are some exciting developments regarding nutrition-enhanced products. He said the consumer sees no benefit from herbicide-resistant crops. He said all the benefits flow to the producer, not to the consumer.

At the request of Chairman Wanzek, Dr. William W. Wilson, Department of Agribusiness and Applied Economics, North Dakota State University, presented testimony regarding genetically modified wheat, economic issues, and segregation strategies. A copy of his testimony is attached as Appendix C.

Dr. Wilson said he is involved in a biotechnology grant to research the prospective benefits of biotechnology in small grains. He said the study includes an examination of the demands, competition, and other marketing issues.

Dr. Wilson said the growth and development of genetically modified corn and soybeans have been very rapid since the late 1990s. He said there has been some alleged resistance among key foreign customers. He said labeling is costly and there is difficulty in effectively keeping genetically modified and non-genetically modified crops completely separate. He said all of these are worsened by the Star-Link episode.

Dr. Wilson said many major players are supportive of biotechnology but insistent on segregation. He said Roundup Ready wheat shows an agronomic benefit of 11 to 14 percent increased yield. He said there is a reduced input cost and reduced dockage and removal costs. He said there is a net return of roughly \$15 to \$20 per acre.

Dr. Wilson said Syngenta's annual report shows that it will propose a 2007 launch date for fusarium resistance. He said vomitoxin resistance has an economic effect of approximately 40 cents per bushel. He said dockage savings are also in the range of 8.4 cents per bushel. He said about 62 percent of the

dockage content is weed seed. He said that is an item that is removed through biotechnology.

Dr. Wilson said soybeans are being grown competitively, even in the Minot area. He said that would never have been envisioned even a few years ago. He said soybean exports increased in recent years. He said wheat exports have decreased, even without genetically modified wheat.

Dr. Wilson said Du Pont is working on a genetically modified wheat that would be drought-resistant. He said the focus of genetic modification in the next few years will be on bread-making and noodle-making. He said these benefits are likely to result in increased yield and decreased production costs. He said the incentive to develop second-phase benefits will be lessened if for some reason the first-phase producer benefits do not come to fruition. He said producers are fairly uniform in what they would like to see from a genetically modified wheat product. He said there is less uniformity with respect to what consumers want.

Dr. Wilson said it is not constructive for anyone to want first-tier benefits until there are second-tier benefits. He said the benefits apply to both tiers.

Dr. Wilson said the National Center for Food and Agricultural Policy recently released a study that examined biotechnology in crops from the perspective of biotechnology that has been adopted, biotechnology that has been approved but not adopted, biotechnology that is still under development for current pest problems, and biotechnology that is under development for future pest problems. He said one of the authors of the study spoke to this committee at an earlier meeting. He said the study found that North Dakota has the most to gain among any of the states. He said one of the reasons is that North Dakota has very limited biotechnology today. He said a state such as Iowa does not have a lot of room within which to expand its biotechnology efforts.

Dr. Wilson said some of the presenters and other outsiders have made reference to export markets that are adverse to genetically modified content. He said when comments such as this are made, the speakers generally tend not to mention that those countries each account for only about 1 percent of our product purchase. He said the fact that our largest market is our own domestic market is ignored. He said claims of buyer aversion need to be challenged. He said the United States domestic market is by far the dominant market. He said buyers are naturally averse prior to a specific trait gaining regulatory approval. He said when asked, a buyer will say no to Roundup Ready wheat in part because it has not yet been approved. He said buyers are often not fully informed about the functional differences between genetically modified and nongenetically modified products. He said just because a country is pursuing labeling does not necessarily imply that the country has an aversion to a particular product.

Dr. Wilson said there are different demands for genetically modified acceptance. He said there are reduced costs for production and increased costs for marketing. He said a recent North Dakota State University study examined international impacts on consumer and producer welfare from the introduction of genetically modified wheat. He said the study found that the United States would have a first-mover advantage if it adopted genetically modified wheat. He said if cost-savings are large enough, those savings will more than offset any short-term loss of some export markets. He said United States producers would benefit from all but the most widespread adoption scenario. He said if every country in the world accepted genetically modified wheat, the United States would have no advantage.

Dr. Wilson said Monsanto has indicated that it will release Roundup Ready wheat only if it is approved for use in Canada and the United States. He said like in the United States, the Canadian seller, which is the Canadian Wheat Board, is not the one who determines whether the product should be released. He said in Canada the determination is left to the Canadian Food Inspection Agency, which functions like the Food and Drug Administration.

Dr. Wilson said the western wheat growers in Canada have indicated support for genetically modified wheat. He said the Canadian Wheat Board is an influencer of decisionmakers, but it is not the decisionmaker. He said he believes the Canadians will approve genetically modified wheat. He said he believes the Canadians will define separate classes of wheat, i.e., genetically modified wheat and nongenetically modified wheat. He said that will be the mechanism by which the Canadians will facilitate their segregation efforts. He said he suspects that the Americans will be less likely to accept separate segregation and grading of genetically modified wheat and nongenetically modified wheat.

Dr. Wilson said the first issue with respect to consumer acceptance will involve defining who is the consumer. He said it needs to be determined whether the consumer is the person who eats the sandwich, the bread buyer, a governmental regulatory agency, or some other entity. He said there are divergent interests among consumers, bakers, millers, etc. He said when representatives of those groups are asked how they view genetically modified wheat, they are being asked about a situation that does not yet exist.

Dr. Wilson said every end user of wheat is looking for a way to improve the functional characteristics of wheat. He said end users are not particularly interested in yield increases and herbicide resistance.

Dr. Wilson said a recent study at North Dakota State University found a 7 percent rejection rate of products with a genetically modified content. He said the audience was North Dakota State University students. He said the conclusion might be different in

other sectors. He said the North Dakota State University audience was willing to pay up to 4 percent more for products that were nongenetically modified.

Dr. Wilson said testing and tolerances already occur in the grain industry. He said in some cases governments establish tolerances. He said the Food and Drug Administration establishes tolerances. He said there are also commercial tolerances. He said some recipients might want tighter tolerances than what is reflected in the governmental regulations. He said different buyers have different tolerances. He said if every buyer had exactly the same tolerances, things would be much easier.

Dr. Wilson said if a trait is approved, there is not a requirement for labeling. He said in Japan, if the top three ingredients exceed 5 percent, there is a labeling requirement. He said a year ago the European Union proposed 1 percent tolerances. He said they recently approved a .5 percent tolerance. He said labeling does not mean there is a restriction on imports. He said it just means the product has to be labeled.

Dr. Wilson said the European Union already sets tolerances subject to traceability. He said we are exporting wheat to the European Union under those requirements. He said as time goes forward the estimates for identity preservation have gone from three to four cents per bushel to around 22 cents per bushel.

Dr. Wilson said it is incumbent upon end users to express their needs. He said those needs, as well as any aversion to Roundup Ready wheat, can be articulated in contracts that clearly spell out tolerances and testing requirements. He said testing is developing very quickly. He said the cost per test has fallen threefold or fourfold over the past two years. He said the tests that are being developed are very effective and cost-efficient.

Dr. Wilson said testing could be applied at a variety of points along the production continuum. He said the concern is to ensure that a system is not created wherein the only person making a profit is the tester.

Dr. Wilson said there are risk factors associated with adventitious commingling. He said the Agricultural Research Service is presently looking at the risk of accidental commingling in the grain-handling industry. He said 97.5 percent of the time a farmer will know whether or not he has Roundup Ready wheat. He said there is only a minor risk that producers and elevators will not be entirely truthful.

Dr. Wilson said strip tests are available for about \$7.50 per test. He said the tests take about an hour to perform and have a 95 percent accuracy rate. He said the Canadians are using a polymerase chain reaction (PCR) test. He said this is a DNA test. He said this type of test is preferred in international contracts. He said it usually takes one to two days and it can be used to identify single or multiple traits. He said if an individual wants 99 percent accuracy at

1 percent tolerance, the test costs about \$120. He said the cost rises to over \$400 for more precise testing. He said when there is reference to the Japanese tolerance of 5 percent, the cost of the test is about \$20.

Dr. Wilson said zero tolerance for genetically modified organisms is simply not attainable. He said foreign buyers understand that. He said low levels of tolerances are fairly readily attainable.

Dr. Wilson said the prerequisites for efficient and effective segregation require quality differences in supplies and in demands. He said buyers have to know what they want and what they need. He said buyers have to understand their options. He said buyers have to have the autonomy to express their needs. He said there needs to be available a testing technology that is both cost-effective and repeatable. He said if testing technology was found to be inaccurate or not repeatable, then it might be appropriate to look for governmental regulation.

Dr. Wilson said grain has been segregated for years. He said elevators make an average of 19 different segregations on wheat alone. He said these segregations cover grades, protein, dockage, vomitoxin levels, etc. He said segregation is not being demanded for stability, varieties, farinograph measures, and other factors. He said there is 100 percent segregation by variety for malting barley.

Dr. Wilson said he believes that there will be continued development and adoption of biotech crops. He said there will be further development and differentiation in corn and oilseeds. He said wheat will be ready for adoption in two to three years and other small grains will lag substantially.

Dr. Wilson said there will be a dual-marketing system. He said groups of buyers will have differing demands for different traits. He said buyers will have to be less random and more premeditated in their purchase decisions. He said he does expect to see specialization by growers, by regions, and even by elevators.

Dr. Wilson said Roundup Ready wheat will be approved for use in the United States and in Canada. He said, thereafter, genetically modified wheat with other traits will begin to be introduced.

Dr. Wilson said the thorny issue is where do states fit in, given this rapidly developing world of biotechnology. He said there are pretty extensive regulations at the federal level. He said states will not be able to replicate that type of regulation and come up with better resolutions on their own. He said states will have a large role to play in the third-party certification process and in research with respect to markets and regulations. He said in coming years, as biotechnology develops, there will be a proliferation of information. He said imagine dealing with a wheat that has 10 traits, some of which are accepted and approved and some of which are not.

In response to a question from Representative Fairfield, Dr. Wilson said, ultimately, the major grain-handling companies will have to put in place a system for handling the grain. He said state governments have very little control over identity preservation and handling systems. He said the companies are already positioning themselves to do this regardless of what actions state governments take. He said state governments need to look at facilitating the development of these systems.

In response to a question from Representative Nicholas, Dr. Wilson said there are companies that are investing significant dollars under the assumption that genetically modified wheat will be approved for use. He said if North Dakota places a moratorium on genetically modified wheat, it would be likely that the research dollars will not continue to be funneled to the state.

In response to a question from Representative Nelson, Dr. Wilson said organic farmers will confront big challenges and big opportunities. He said the challenge will be to find ways in which producers of genetically modified crops, nongenetically modified crops, and organic crops can coexist.

In response to a question from Senator Wanzek, Dr. Wilson said one of the big challenges is to expand the agronomic competitiveness of small grains. He said neighboring states are ahead of North Dakota in developing genetically modified small grain varieties. He said he does not know how one would keep other states' varieties out of our facilities or even if, as a state, North Dakota would have the legal authority to do so.

In response to a question from Representative Brandenburg, Dr. Wilson said there needs to be caution when saying foreign buyers do not want genetically modified products. He said he was told by a Mexican buyer that because their governmental regulatory system is not as strong as the United States, the Mexican government likely will adopt whatever position the United States adopts. He said other countries point to the United States as having a pretty good regulatory process.

In response to a question from Representative Mueller, Dr. Wilson said labeling is costly. He said to impose a labeling requirement simply for information that is not meaningful is costly and not very helpful. He said Oregon is trying to implement a labeling requirement. He said the food manufacturers are having to figure out how they could produce a product for sale in multiple states yet provide a separate labeling system for Oregon. He said if government regulators determine that one trait is substantially equivalent to another, the food industry does not see why it should label one trait but not have to label a substantially equivalent trait and incur a high cost for doing so.

In response to a question from Representative Fairfield, Dr. Wilson said people say 8 out of 10 of our

customers do not want genetically modified wheat. He said that might be technically accurate if the domestic market is ignored.

At the request of Chairman Wanzek, Dr. Gary A. Goreham, Department of Sociology and Anthropology, North Dakota State University, presented testimony regarding the social and ethical issues associated with genetically modified organisms. A copy of his testimony is attached as Appendix D.

Dr. Goreham said producers have been doing genetic modification since time immemorial. He said the term "transgenic organism" is more accurate than "genetically modified organism." He said there are risk and benefit references and references to good and bad. He said what needs to be asked is whether it is right or wrong to develop genetically modified organisms, is it right or wrong to use them, and on what basis is it right or wrong. He asked what is the highest value or the greatest good to be achieved by this. He asked whether the greatest good is to make money, to serve people, or something else.

Dr. Goreham said the study about which he will be reviewing examined ethical principles that form people's attitudes and behaviors. He said, in conducting the study, people were asked if they were for or against genetically modified organisms. He said the next question had to do with how they reached that particular decision. He said 24 individuals were interviewed. He said among them were farmers, legislators, research scientists, agribusiness people, and religious leaders. He said more people have subsequently been included in the study. He said the sampling was not scientific, but it was indicative of the general positions taken by people.

Dr. Goreham said most people could not articulate the principles that went into their decisionmaking. He said the five principles that began to emerge dealt with nature and life, personal autonomy, social and economic justice, beneficence, and nonmaleficence.

Dr. Goreham said the nature-creation-life-land-environment principle included references to living, farming, working, and operating in harmony with nature and its physical and biological processes. He said one of the subpieces that emerged dealt with the inherent goodness of nature. He said there is something about nature that is both good and valuable. He said the value is related to goodness in that it is not good because it is valuable but rather that it is valuable because it is good, relative to that which is human made.

Dr. Goreham said related to goodness is the concept that diversity is good. He said heterogeneity is good. He said someone can hold the principle that land, the environment, and nature are good and that they require stewardship. However, he said, the application of that principle can lead people to differing conclusions regarding genetically modified organisms.

Dr. Goreham said issues of personal autonomy and freedom of choice emerge when organic farmers want to raise organic crops and neighboring farmers want to raise genetically modified crops. He asked who is responsible--the farmers or the consumers.

Dr. Goreham said some people referenced personal, social, and economic rights. He said there is a belief that one has rights as a human. He said the question for legislators is how should they regulate an industry and at the same time balance everyone's rights. He said there are questions about a farmer's right to make decisions about his own operation and there are questions about a corporation's rights regarding patent issues and the ultimate provision of seed for the growing of crops.

Dr. Goreham said another issue of distribution has to do with the equitable distribution of genetics and whether genetic heritage can or should be taken out of the public realm and placed in the hands of for-profit companies. He said this issue also touches on the equitable distribution of food.

Dr. Goreham said the issue of beneficence deals with the doing of good through scientific and technological means. He said this includes utilitarian or consequentialist principles. He said earlier in the day the committee heard about risks and benefits and which one outweighs the other.

Dr. Goreham said the issue of nonmaleficence is a little like the Hippocratic oath. He said the principle means "above all else, do no harm." He said people were not necessarily able to articulate the five key ethical principles that emerged, but they were very much a part of their decisionmaking and their position with respect to genetically modified organisms.

Dr. Goreham said his research is not designed to support a moratorium or to argue against it, but rather to help the legislators understand the perspectives from which people arrive at their positions with respect to genetically modified organisms.

In response to a question from Representative Mueller, Dr. Goreham said he has found that people believe on one hand we should be involved in our own rational self-interest and on the other hand we should not be asking what is best for ourselves as individuals, but rather what is best for us as a group.

Chairman Wanzek recognized Ms. Sarah Vogel. Ms. Vogel said she is a partner at the Wheeler Wolf Law Firm and a former Agriculture Commissioner. She said she is appearing on her own behalf. She said genetically modified organisms remind her of karnal bunt. She said karnal bunt was a fungus. She said it was not a threat to human safety but customers did not want to buy wheat from any area in which karnal bunt was prominent. She said Canada will not grow genetically modified wheat if the United States does allow it.

Ms. Vogel said with respect to organic production, she is not at all concerned with any liability that might befall Monsanto or the other large agribusinesses. In

fact, she said, she would like to see them held liable. She distributed a document entitled *2002 Monsanto Technology/Stewardship Agreement*. A copy of the document is attached as Appendix E. She said this technology agreement is required by Monsanto before a farmer can purchase and plant seed containing various technologies.

Ms. Vogel distributed a document entitled *GMO Liability Threats for Farmers*. A copy of the document is attached as Appendix F. She said the document was prepared by Mr. David R. Moeller, Farmers' Legal Action Group, Inc., St. Paul, Minnesota. She said it is possible that genetically modified wheat will become intermingled unintentionally with nongenetically modified wheat. She said this intermingling will have consequences and losses. She said she suspects that insurance companies will not be willing to underwrite the activity.

In response to a question from Representative Rennerfeldt, Ms. Vogel said she supports a moratorium on the growing of genetically modified wheat in North Dakota. She said states have rights that allow them to protect their internal economies. She said it is not prudent to allow the growing of genetically modified wheat in North Dakota because of the threat to our economy.

Ms. Vogel distributed a document entitled *State GMO Restrictions and the Dormant Commerce Clause*. A copy of the document is attached as Appendix G. She said the document also was prepared by Mr. Moeller.

In response to a question from Representative Nicholas, Ms. Vogel said soybeans are used more for feed than for human use. She said wheat is used almost exclusively for human food.

Representative Nicholas said our wheat markets are one-half of what they used to be. He said the export markets do not want wheat regardless of whether it is genetically modified wheat.

In response to a question from Senator Bowman, Ms. Vogel said the Monsanto technology agreement is crafted very carefully in accordance with the Uniform Commercial Code. She said Monsanto has sued hundreds of farmers.

Chairman Wanzek recognized Mr. John Crabtree, Dakota Resource Council. Mr. Crabtree distributed folders containing letters regarding genetically modified wheat. Copies of the folders are on file in the Legislative Council office.

Chairman Wanzek recognized Mr. Wayne F. Fisher, Dickinson. Mr. Fisher distributed a document entitled *Biotech Impact on U.S. Hard Red Spring Wheat Exports*. A copy of the document is attached as Appendix H. He said it would be better if legislators took action to prohibit genetically modified wheat rather than letting the courts become involved in the issue. He said the smaller elevators probably will have some opportunities in the short term but once everyone has genetically modified wheat, those opportunities will no longer be there.

Representative Brandenburg said the big issue is the segregation of the wheat. He said Roundup Ready crops are here. He said even if North Dakota were to put a moratorium on Roundup Ready wheat, the product still will enter the state. He said the responsible thing to do is to figure out how to deal with the product.

Mr. Fisher said when Roundup Ready soybeans were first introduced, the farmers did not know what the problems would be. He said he does not see any health benefits to Roundup Ready wheat.

In response to a question from Representative Fairfield, Mr. Fisher said there will be greater difficulty in eliminating weeds.

In response to a question from Representative Nelson, Mr. Fisher said he would not mind if the researchers could somehow contain the genetically modified products. He said the research should not be paid for by companies such as Monsanto.

Representative Mueller said it is not known what Roundup Ready wheat will cost. He said there are pretty hefty technology fees associated with other genetically modified crops. He said he has found there is very little difference between the cost of genetically modified and nongenetically modified soybeans.

Chairman Wanzek recognized Ms. Theresa Podahl, Executive Director, Northern Plains Sustainable Agriculture Society. Ms. Podahl presented testimony regarding genetically modified crops. A copy of her testimony is attached as Appendix I. She said keeping contamination at a level that will allow organic farming to continue will be impossible. She said lawsuits are pending in Canada and have been threatened in Australia. She said organic agriculture is not supported by the government. She said it is driven by the marketplace.

In response to a question from Representative Nelson, Ms. Podahl said there is no tolerance level set for organic certifications. She said if the organic industry did set a tolerance of zero, anyone who did not meet that level would be decertified. She said the organic industry is consumer-driven and it is consumer-responsive. She said the consumers do not want genetically modified products. She said she does not raise any of the crops that are genetically modified. She said there is still organic soybean production in the state, but there is no longer organic canola.

In response to a question from Senator Mutch, Ms. Podahl said she has a six-crop rotation.

Ms. Podahl said she likes her neighbors and she resents the fact that this issue could come between them. She said biotechnology is just one more step in the industrialization of agriculture. Senator Wanzek said other producers believe that biotechnology will make them more profitable and thereby enable them to stay on their farms.

Chairman Wanzek recognized Mr. Chris Dodson, Executive Director, North Dakota Catholic Conference. Mr. Dodson presented testimony regarding ethical and moral issues concerning genetically engineered crops. His testimony is attached as Appendix J.

Chairman Wanzek recognized Mr. Karl Limvere, Pastor, Medina, North Dakota. Mr. Limvere presented testimony regarding genetically modified wheat. A copy of his testimony is attached as Appendix K.

Chairman Wanzek recognized Mr. Richard Schlosser, Vice President, North Dakota Farmer's Union. Mr. Schlosser presented testimony regarding genetically modified wheat. He said he shudders to think of what would happen if insurance coverage would be offered for genetically modified products. He said several insurance companies have left the state. He said this move would prompt even more departures. He distributed a document entitled *GMO Wheat*. A copy of the document is attached as Appendix L.

Chairman Wanzek recognized Mr. Donny Nelson, Keene. Mr. Nelson presented testimony regarding genetically modified wheat. He said at a prior meeting he told the legislators that they need to look at issues of safety, economics, trade, liability, containment, and life form patterns. He said a lot of federal legislation starts at the state level. He said North Dakota should impose a moratorium because North Dakota has the most to lose. He said unless North Dakota imposes a moratorium, genetically modified wheat will be released.

Chairman Wanzek recognized Mr. Greg Daws, Michigan, North Dakota. Mr. Daws presented testimony regarding genetically modified wheat. A copy of his testimony is attached as Appendix M. He said he has traveled extensively in Europe and in Canada. He said the Europeans are far ahead of the United States in most production practices. However, he said, they are behind in the biotechnology area. He said the Europeans are worried about this. He said the Europeans are on one hand saying they do not want biotech wheat, but on the other hand, they are working very hard to figure out the process for creating such. He said their game plan is to develop their own biotech wheat and become our ultimate competitors.

Mr. Daws said he would like to have a biotech wheat that was fusarium-resistant. He said if that were available, everyone in the state would be lined up to get it. He said people are talking only about Roundup Ready wheat. He said there are many genetic opportunities and agribusiness companies should not be precluded from researching and promoting these products. He said Monsanto has publicly stated that it will not release Roundup Ready wheat until both Canada and the United States are ready to accept it.

Chairman Wanzek recognized Ms. Annie Kirschenmann, President and CEO, International Certification Services, Inc. Ms. Kirschenmann presented testimony regarding genetically modified wheat. A copy of her testimony is attached as Appendix N. She said International Certification Services, Inc., is a company that certifies organic food production.

Chairman Wanzek recognized Mr. Don Dufner, Buxton. Mr. Dufner presented testimony regarding genetically modified wheat. He said he has been farming organically for 20 years. He said if Roundup Ready wheat comes to North Dakota, it will ruin his operation. He said farmers do not want Roundup Ready wheat.

Chairman Wanzek recognized Mr. Donald Vig, Valley City. Mr. Vig presented testimony regarding genetically modified wheat. He said wheat is different from soybeans and canola. He said the evolutionary processes will ensure that the genome will spread into the grasses that are pervasive in North Dakota. He said Roundup Ready will be a short-term fact. He said the state will lose its organic industry if Roundup Ready wheat is allowed.

Senator Wanzek said he is concerned that if North Dakota is the only player that imposes a moratorium, that move will not make the concern that is raised by the organic farmers go away. He said the organic industry is identity-preserved. He said the same would have to apply to conventional production.

Senator Bowman asked if there is any organic farmer who thinks genetically modified wheat would be okay for introduction. He said if a moratorium is put in place for two years, the organic farmers will come back in two years and ask for an additional two years. He said a lot of people want genetically modified products, even if the organic farmers do not.

Chairman Wanzek recognized Mr. Duane Boehm, Richardton. Mr. Boehm presented testimony regarding genetically modified wheat. A copy of his testimony is attached as Appendix O.

Representative Nelson said Monsanto has said, on the record, in all the wheat states and Canada, that Roundup Ready wheat will not be introduced until the issues surrounding its introduction have been satisfactorily addressed.

Chairman Wanzek recognized Mr. Todd Leake, Emerald. Mr. Leake presented testimony regarding genetically modified wheat. He said there is no federal agency that has the regulatory authority or the mandate to require the segregation of genetically modified crops. He said the federal agencies also do not have the authority to require market acceptance before they approve genetically modified organisms. He urged a moratorium until the issues of market acceptance and segregation are resolved.

Representative Brandenburg said he agreed to the moratorium bill in the 2001 legislative session because of market concerns. He said some of those

concerns are being addressed. He said plans are moving forward for segregation systems. He said there is a commitment not to release the product until there is acceptance by the United States and Canada. He said it seems that this is what we want.

Chairman Wanzek recessed the meeting at 6:15 p.m.

ETHANOL

Chairman Wanzek called the meeting to order at 9:00 a.m. on Thursday, July 11, 2002.

At the request of Chairman Wanzek, Mr. Ron V. Lamberty, Market Development Director, American Coalition for Ethanol, presented testimony regarding ethanol marketing and promotion. Mr. Lamberty distributed a document entitled *Ethanol Volume Potential*. A copy of the document is attached as Appendix P.

Mr. Lamberty said in Ohio, Pennsylvania, Indiana, and New York, Sunoco Oil companies are blending ethanol into all their products. He said they are making a suboctane gasoline and blending it with ethanol to achieve an 87 octane.

Mr. Lamberty said there has been a lot of discussion about boutique fuels--different fuels for different parts of the country. He said the renewable fuels standard gives the oil companies the flexibility to use ethanol. He said they will be expected to sell a certain amount but when or where will be up to them. He said there is a credit-trading mechanism built into the renewable fuels standard. He said politically, people on both sides of the aisle are supportive of this and the ethanol and petroleum industry are working together.

Mr. Lamberty said there is a market for ethanol now. He said the markets are expanding. He said producer incentives play the biggest role in getting ethanol plants built now. He said Minnesota, South Dakota, and Nebraska have put in place multiyear incentives. He said a 40-million gallon ethanol plant costs \$60 million to build and employs 35 to 40 people at an average wage of \$35,000 to \$40,000. He said many of the people employed by the plants have to be educated. He said their paychecks have an impact on local and state economies. He said an ethanol plant can impact corn prices by 5 to 10 cents per bushel. He said incentives are important in getting plants built. He said South Dakota has two plants that are close to coming off the incentive. He said those plants will be operational for at least another 10 years. He said the incentives are out there and the growth goes where the incentives are. He said Minnesota has had an ethanol mandate for about seven years.

In response to a question from Representative Nelson, Mr. Lamberty said over 4,000 farmers are invested in plants that are being built in South Dakota. He said the incentive is important in adding to the bottom line during the early years of a plant.

Mr. Lamberty said Wentworth, South Dakota, was struggling economically. He said the ethanol plant there is having a significant impact on that town, even just from people driving by or stopping for lunch.

Mr. Lamberty distributed a document entitled *Economic Impact of Ethanol*. A copy of the document is attached as Appendix Q.

In response to a question from Senator Bowman, Mr. Lamberty said he does not believe that many states will be as aggressive as Minnesota in supporting ethanol. He said Minnesota studies show that for every dollar the state spends on ethanol, there is a \$12 return. He said the impact of a \$40 million dollar ethanol plant can have a financial impact on the economy of \$30 billion over the years of the plant.

Mr. Lamberty said an ethanol plant has an advantage if it is owned by a farmer cooperative or by people who live in the state. He said when those people receive income from the plant, they will pay taxes to the state and they will be able to spend it in the state. He said the ethanol plants will be in existence long after the incentives go away. He said as far as funding the incentives in the long term, there are discussions in South Dakota that are examining a reconfiguration of the gas tax distribution. He said raising the gas tax is never a popular thing. He said the reason to do it is to promote economic development within a state. He said the only way it can be looked at successfully is if it is considered to be an economic development tool for the state.

In response to a question from Representative Nelson, Mr. Lamberty said there have been some problems over the years with respect to the ethanol plant smokestack emissions. He said most new ethanol plants are being built in a manner that minimizes the emissions. He said most of the smokestack emissions come from drying grain.

In response to a question from Representative Mueller, Mr. Lamberty said because there is refined fuel in the state, there probably will be methyl tertiary butyl ether (MTBE) in North Dakota. He said South Dakota enacted an MTBE ban two or three years ago.

Mr. Lamberty distributed a document entitled *States that have Banned MTBE*. A copy of the document is attached as Appendix R. He said pipelines that carry product through multiple states do not allow MTBE because they could not then sell the product in the states that banned MTBE.

In response to a question from Representative Mueller, Mr. Lamberty said the banning of MTBE usually requires a phase-in period. He said the refineries would have to be given a period of time within which to dispose of their MTBE. He said as MTBE becomes banned in more states, MTBE will actually become cheaper and even though it is a health risk, it will end up giving people cheaper gasoline. He said, other than California, he has not heard of any state being sued for banning MTBE.

In response to a question from Senator Wanzek, Mr. Lamberty said the phase-in period seems to be about three years for an MTBE ban.

In response to a question from Senator Mutch, Mr. Lamberty said South Dakota may very well start taxing ethanol blends at the same rate as gasoline and the extra two cents per gallon will be used for the ethanol incentive.

In response to a question from Representative Schmidt, Mr. Lamberty said whether ethanol costs more than gas depends on the cost of gas. He said the technology has changed dramatically in the last five to seven years. He said the actual cost of producing ethanol has to be compared against the indirect costs of gasoline, including such things as 25 cents a gallon to defend United States oil shipping lanes around the world. He said right now ethanol is selling for about 50 cents a gallon more than gasoline. He said even the new plants would be cutting it close if they did not have the state subsidies.

In response to a question from Representative Fairfield, Mr. Lamberty said the American Coalition for Ethanol does not have a desire for inexpensive corn. He said there is probably a way to take advantage of corn that is inexpensive. He said most of the plants under consideration assume they can acquire corn for about \$2.00 to \$2.25 per bushel. He said when corn producers invest in an ethanol plant, they are able to benefit by either ethanol profits or higher corn prices.

In response to a question from Senator Wanzek, Mr. Lamberty said the impact on corn prices is generally about 6 to 10 cents per gallon.

Senator Bowman said he is concerned that if corn prices get too high, the ethanol industry will start importing corn. Mr. Lamberty said imported corn has not been an issue because of the fact that so much corn has been available in the United States. He said what imports will do is act as a modifier. He said if the price of corn is too high in the United States, corn will be imported from other countries. He said if the ethanol industry truly drives the prices up, more people will grow corn. He said Saskatchewan just enacted an ethanol mandate for its province. He said perhaps some North Dakota corn will be sold up there.

Chairman Wanzek recognized Mr. Mike Clemens, President, North Dakota Corn Growers Association. Mr. Clemens said North Dakota exports 69 percent of the corn grown in the state. He said he does not foresee the need for North Dakota to import corn.

In response to a question from Representative Mueller, Mr. Clemens said the new farm bill will increase the loan rate on corn by nine cents.

Mr. Lamberty said renewable fuels must account for 3 percent of the nation's motor fuel by 2011. He said the Senate energy bill would phase out the use of MTBE nationwide. He said ethanol can be supplied and blended cost-effectively coast to coast.

Mr. Lamberty said ethanol production facilities are located mainly in the Midwest. He said Minnesota currently produces 312 million gallons of ethanol per year. He said Iowa has two huge Archer Daniels Midland plants in Cedar Rapids and in Clinton. He said Nebraska has 21 potential plants based on its ethanol incentive program. He said 11 of those are expected to come on-line. He said three additional plants are reviewing funding options.

In response to a question from Senator Wanzek, Mr. Lamberty said the biggest risk faced by the ethanol industry is not knowing whether it can be self-supporting when the incentives go away. He said the subsidies were designed to exist until plant construction debt was paid off or at least paid down. He said at that point, which is about 10 years into a plant's operation, it should have paid down enough of the construction debt to enable it to maintain sufficient cashflow.

In response to a question from Representative Nelson, Mr. Lamberty said there has not been a problem finding a market for the byproducts of ethanol production. However, he said, the price that is available for those products is not always as high as some would like. He said there are also more plants that are capturing the carbon dioxide off the fermentation process.

In response to a question from Representative Nelson, Mr. Lamberty said the dry distiller's grain is edible. He said it can be used as snacks. He said there is not likely to be a large market for direct sales for human consumption. He said the cattle feeders are finding that it is a good product for them.

In response to a question from Representative Schmidt, Mr. Lamberty said one of the ethanol plants that will be built north of Pierre, South Dakota, will have a cattle feedlot right next to it. He said the gas from the manure will be captured to fuel the ethanol plant boilers. He said the ultimate plan would be to build a small slaughter plant on the site. He said wet distiller's grain will last from two to seven days before it becomes unusable. He said if there were more cattle feeding operations in the state, it would be more economical than having to dry the grain and send it out of state for animal feed.

At the request of Chairman Wanzek, Mr. Ted Aulich, Research Manager, Energy and Environmental Research Center, University of North Dakota, presented testimony regarding ethanol. A copy of his testimony is attached as Appendix S. Mr. Aulich said he is a process chemist at the Energy and Environmental Research Center. He said he has been at the Energy and Environmental Research Center for approximately 16 years. He said he has been working with ethanol and other renewable fuels, their emissions, production strategies, etc.

Mr. Aulich said during the Civil War, spirits were taxed at \$2.08 per gallon and kerosene was taxed at 10 cents per gallon. He said the spirits tax was lifted

in 1906 after the oil trust was formed and the automobile industry was born. He said during Prohibition, permits for ethanol fuel production were very limited. He said it was during this time that the Bureau of Alcohol, Tobacco and Firearms initiated the denaturing process.

Mr. Aulich said during the 1920s, refiners realized that higher octane levels were needed in gasoline. He said the Ethyl Corporation opted for lead in gasoline rather than ethanol. He said by 1940, 70 percent of all gasoline contained lead.

Mr. Aulich said during the World War II era, breweries produced ethanol for rubber and ethanol production topped 600 million gallons per year. He said by the 1970s, the country was experiencing oil shortages and lead phaseouts.

Mr. Aulich said a lot of states have already banned MTBE. He said MTBE is an oxygenate. He said it provides octane and it provides actual volume. He said California backed off of its MTBE ban. He said MTBE will probably be banned by the federal government. He said there is a five billion gallon per year mandated use of biofuels by 2014. He said that will make oxygenate use optional. He said some people believe there is no need for oxygenates in fuel. He said that may be accurate for new cars but the reality is as cars become older, their catalytic systems and their computer systems will degrade, resulting in the output of a lot of pollution from the car.

Mr. Aulich said fuel credit trading options will allow renewable fuels to be used around the country where doing so makes sense. He said he thinks this would work like air emissions from power plants. He said the bill is out of committee. He said it has some significant support. He said the American petroleum industry has endorsed the bill. He said it also has the support of President Bush, Representative Dennis Hastert, and Senator Tom Daschle.

Mr. Aulich said almost all of the ethanol plant construction during the last few years has involved dry-milling plants. He said dry-milling plants are less expensive to build than wet-milling plants. He said a dry-milling plant having a capacity of about 30 million gallons per year costs about \$42 million.

Mr. Aulich said carbon dioxide is a recoverable product, but it is profitable only if one can sell the product within 150 miles of the plant. He said if the market is beyond that range, the large carbon dioxide manufacturers will undercut the smaller producers. He said a 30-million gallon plant will pump out about 36 million gallons of dry distiller's grain. He said one would need about 96,000 cows onsite in order to use up all the material and eliminate the drying process. He said if a plant can acquire access to even one-half that number of cows, it would help reduce its costs.

Mr. Aulich said feedstocks account for about 62 percent of the per gallon production cost breakdown. He said North Dakota does not produce a lot of corn, compared to the "big" corn states. He said if

an ethanol plant in North Dakota pays even a nickel a bushel more for corn than does a producer in another state, the ethanol plant will be at an economic disadvantage. He said feasibility studies are generally built on the assumption that corn is readily available within 30 to 40 miles of a potential ethanol plant. He said the shuttle train concept has changed that perspective. He said plants are now being erected in Oregon and Washington. He said those plants are predicated on being able to receive corn by shuttle trains from Iowa and Illinois. He said that method of operation would allow an ethanol plant to be sited in western North Dakota.

Mr. Aulich said some of the big plants in Illinois burn coal. He said that is a lot less expensive than natural gas, provided the infrastructure is in place for both burning the coal and for dealing with the emissions. He said initial capital costs are higher by about \$10 million to \$15 million for a coal-fired plant. He said the boiler and the coal loading and feeder systems, as well as the mechanical systems, to deal with the emissions are what drive up the cost. He said natural gas systems tend not to produce as much pollution. He said about 85 percent of the plants use natural gas. He said natural gas accounts for about 16 percent of the production cost.

Mr. Aulich said ethanol plants are now being designed with computerized systems which can provide for better heat management. He said many of the newer plants are designed for zero wastewater discharge. He said plants are also adding anaerobic digesters. He said the digesters produce methane out of wastewater. He said the methane can be burned and can be used to displace some of the natural gas requirement.

Mr. Aulich said the ethanol industry has been in the news for emissions of volatile organic compounds. He said the Environmental Protection Agency is finding, through the use of newer technology, that plants are putting out a lot more volatile organic compounds than previously thought. He said the new thermal oxidizers are able to remove about 99 percent of the odor-causing matter and they are able to remove volatile organic compounds. He said a thermal oxidizer costs about \$1 million. However, he said, such a machine does take care of odor problems. He said the odors come from the drying process.

Mr. Aulich said wet-milling plants are a lot more complex and that is why they cost more to build. However, he said, wet-milling plants include the potential for more product diversification. He said the Pro Gold plant could easily be converted to an ethanol plant. He said all the big ethanol plants, some of which exceed 200 million gallons per year, are wet-milling plants. He said they have that product diversification. He said because of the higher upfront construction costs, most of the smaller plants are dry-milling plants.

Mr. Aulich said biomass ethanol could impact North Dakota down the road. He said biomass ethanol involves cellulose rather than starch. He said wood, cardboard, corn stocks, wheat straw, prairie grass, switch grass, etc., are all biomass. He said it is harder to unlock the sugar from biomass than it is from starch. He said biomass contains five carbon sugars. He said corn contains all six. He said a lot of the biomass is five carbon sugars and it consequently needs a bug--a technique that will account for that last carbon sugar. He said this process will come to the forefront in the next 10 to 20 years. He said a corn plant today can be converted to a biomass plant down the road.

In response to a question from Senator Wanzek, Mr. Aulich said if corn can be obtained for \$2 a bushel, and natural gas at \$5, it probably costs about \$1.10 to \$1.15 to produce a gallon of ethanol. He said being able to sell byproducts such as the dry distiller's grains will reduce the production cost by about 20 cents. He said with new technologies the cost of producing ethanol should come down.

Mr. Aulich said there was a recent *Wall Street Journal* article that was quite negative toward the ethanol industry. He said the article stated that it took two gallons of fossil fuels to produce one gallon of ethanol. He said the article also included references to pollution, etc. He said this study was conducted at Cornell University about 20 years ago. He said the study is updated every few years. He said the study has a number of irregularities, including things such as the fact that it used irrigated corn prices. He said more recent studies show that a gallon of ethanol contains 1.3 times the energy that is used to produce it.

Mr. Lamberty said the Cornell University study is recycled approximately every five years. He said the details of the study are ridiculous and do not accurately assess the costs. He said the ethanol industry is a young industry. He said it is comparable to the computer industry in the changes it has undergone during the last decade.

In response to a question from Representative Brandenburg, Mr. Aulich said California Governor Gray Davis first stated there would be a ban on MTBE at the end of 2002. He said Governor Davis then backed away from that directive. He said a number of the large California gasoline suppliers have indicated they intend to start using ethanol as of January 1, 2003. He said that will account for about 55 percent of the gasoline used in California. He said those suppliers are going to start blending ethanol rather than continuing to fight for MTBE.

Mr. Aulich said ethanol is being sold from the standpoint of energy security or domestic security and octane. He said the more gasoline refined in this country, the more need there will be for ethanol.

In response to a question from Representative Brandenburg, Mr. Aulich said North Dakota would

probably have to get a system in place whereby it can obtain access to suboctane gasoline. He said suboctane gasoline is that which has 84 or 85 octane. He said the refineries in Minnesota produce this lower octane fuel. He said every station in Grand Forks that sells ethanol blends is selling 87 octane regular gasoline and 89 1/2 ethanol at the same price. He said the Mandan refinery produces suboctane fuel because most of that goes through the company pipeline to Minneapolis.

Mr. Lamberty said most of the pipeline facilities in this part of the country have an ethanol tank onsite and they blend the gasoline as it is going into the tanker. He said tradition is hard to break. He said there will still be some gas stations that have never sold ethanol and that say they do not want to sell it.

In response to a question from Representative Nelson, Mr. Aulich said to use E-85, the best thing is to acquire a flexible fuel vehicle. He said many people do not realize that such vehicles are available. He said in order to get the maximum efficiency out of an E-85 blend, some changes need to be made to the vehicle's computer sensors.

In response to a question from Senator Wanzek, Mr. Aulich said the concern about using ethanol in small engines is that people tend to let those engines sit for long periods of time. He said when that happens, ethanol tends to dissolve the gum, but it will not completely dissolve the particles. He said the particles then get into the fuel filter and cause engine problems. He said some manufacturers still do not use gaskets and various other parts that are ethanol compatible.

Mr. Lamberty said major boat and snowmobile manufacturers now provide that ethanol use in their engines is okay.

At the request of Chairman Wanzek, Mr. Tade Sullivan, Director of Public Affairs, Iowa Corn Growers Association, presented testimony regarding ethanol policy and the Iowa ethanol retail incentives bill. A copy of his testimony is attached as Appendix T. He said the role of government ought to be to stimulate opportunity.

Mr. Sullivan said there are 10 plants in various stages of planning or construction in Iowa. He said it is anticipated that the demand for ethanol will increase the value of Iowa's corn crop by five cents a bushel. He said the incentive was made possible because all the interested groups were at the table from the beginning.

In response to a question from Representative Nelson, Mr. Sullivan said the Iowa Legislative Fiscal Bureau said the impact of the retail incentive bill would be about \$800,000 for the first year because the bill had a delayed implementation date. He said the fiscal impact in the succeeding years was set at \$1.2 million, \$1.6 million, \$2.2 million, and \$2.9 million.

In response to a question from Representative Mueller, Mr. Sullivan said approximately 57 percent of the gas stations in Iowa surpass the requirement that 60 percent of their retail product contain ethanol. He said that number is significantly higher than when the incentive program began. He said the full impact of the retail incentive bill will not be known until after the 2003 tax returns are filed.

In response to a question from Senator Wanzek, Mr. Sullivan said the Iowa Department of Revenue and Finance was already keeping the necessary records as a result of the excise tax placed on both ethanol and regular fuel. He said the retail incentive is an income tax, not an excise tax. He said it is self-verifying. However, he said, there is an audit trail that can be easily followed by means of the taxes that go to the state.

Mr. Sullivan said the retailers probably would have appreciated getting the money a little sooner rather than waiting for their tax refunds. However, he said, it was still a sizable incentive for them.

In response to a question from Senator Mutch, Mr. Sullivan said Senator Grassley is committed to the concept that states that sell more ethanol should not be adversely impacted with respect to highway trust funds.

In response to a question from Representative Brandenburg, Mr. Sullivan said there is profit to the state when ethanol facilities are built. He said those ethanol facilities pay property taxes and the plant workers pay income taxes.

In response to a question from Senator Wanzek, Mr. Sullivan said it is never known how consumers are going to respond to changes in gasoline prices. He said one of the variables in the process is the cost of corn.

In response to a question from Senator Wanzek, Mr. Sullivan said Iowa did not cap the amount of incentive that any one person could receive.

In response to a question from Senator Mutch, Mr. Sullivan said Iowa's production incentives are significantly different from Minnesota's incentives. He said Minnesota has little or no incentives for producers to actually build the plants. He said there is a reinvestment credit available to cooperatives that are building plants and creating jobs.

In response to a question from Senator Mutch, Mr. Sullivan said the Iowa retail incentive credit can be used by individual cooperative owners.

In response to a question from Representative Brandenburg, Mr. Sullivan said a mandate does not cost the state anything.

In response to a question from Representative Nelson, Mr. Sullivan said typically the super unleaded 89 octane fuel will be the base for the ethanol blend. He said a suboctane fuel is not widely used in Iowa.

In response to a question from Representative Nelson, Mr. Sullivan said Iowa is still in the very early stages of its retail incentive program. He said it is

hoped the early trends will continue. He said there will be some people who will never want to switch to ethanol. He said this position is recognized. He said his organization believes that one should not have to sell ethanol or use ethanol. He said they are merely trying to create the opportunity for people to sell it and use it. He said down the road there may not be the need for this type of incentive.

In response to a question from Senator Wanzek, Mr. Sullivan said ethanol could come into the state from anywhere. He said there is no practical way to say this is North Dakota ethanol and that is ethanol from another state and therefore it is not eligible for the credit.

Representative Nelson said it takes a refinery approximately 10 years to come on-line. He said an ethanol plant can be up and running in two years.

In response to a question from Senator Wanzek, Mr. Sullivan said Iowa has an annual budget of \$5 billion. He said Iowa's fiscal situation has been erratic. He said the Iowa Legislature is looking very carefully at the programs in which they participate.

Mr. Lamberty distributed a document entitled *State Support for Ethanol*. A copy of the document is attached as Appendix U.

Chairman Wanzek recognized Mr. Ron Ness, Executive Director, North Dakota Petroleum Council. Mr. Ness presented testimony regarding ethanol production and marketing. He distributed a document entitled *Letter to State Congressional Delegation*. A copy of the document is attached as Appendix V. He said the letter is being circulated by the North Dakota Farm Bureau. He said the North Dakota petroleum industry favors the fuels agreement contained in S. 517. He said if the bill passes, there will be a tremendous increase in the demand for ethanol. He said a national approach to the problem of boutique fuels would be a far better way to address the situation than having each state pass its own laws. He said the infrastructure for renewable fuels under the bill will allow the fuels to be made and sold in the Midwest where there is an understanding of such product. He said the ethanol industry will have to make all the ethanol it can and the dealers will have to sell all they can. He said there is no MTBE sold in North Dakota. He said that was used in nonattainment cities which did not meet the lower smog emission standards.

Mr. Ness distributed a document entitled *U.S. Gasoline Requirements*. A copy of the document is attached as Appendix W.

In response to a question from Representative Nelson, Mr. Ness said the North Dakota Petroleum Council is opposed to and will continue to oppose statewide mandates. He said mandates serve only to increase the costs of refining and distribution. He said mandates are tremendous burdens to the small retailer. He said his association has not opposed support for the ethanol industry. However, he said,

his association would prefer not to inflate the gasoline tax. He said such a move serves only to increase the price that consumers have to pay at the pump.

COMMITTEE DISCUSSION

Ethanol

Senator Wanzek said last session the Legislative Assembly appropriated \$2.5 million for the two North Dakota ethanol plants. He said it will be difficult to increase that amount, given the current state revenue projections. He said consideration may be given to alternative ways for using that money in the support of ethanol and the ethanol industry. He said one suggestion might be to look at countercyclical situations and to make the subsidy available when the plants are not able to be profitable.

Representative Mueller said the question is what should the Legislative Assembly do. He said he likes the fact that the Iowa retail incentive program addresses the concern of those who do not want to have a mandate.

Representative Nelson said if North Dakota provides for an income tax credit, the impact will be felt on an already tight budget. He said he knows that mandates are viewed as being negative. However, he said, if a commodity can be produced, transported within the state, and used in the state, there are benefits throughout the state. He said an ethanol mandate will benefit every person in North Dakota.

Representative Brandenburg said perhaps the \$2.5 million in ethanol money from last biennium should be put toward an investment tax credit.

Senator Bowman said there needs to be an understanding of the net effect that an incentive bill would have on the state's budget. He said the impact in terms of jobs and taxes would also have to be understood and measured.

Senator Mutch said if there is a reallocation of the appropriated dollars, there will need to be an understanding of the impact on existing ethanol plants.

Senator Wanzek said one question to be addressed is how long the state should be expected to support an ethanol plant.

Representative Nelson said an ethanol mandate would use our commodities and would provide jobs. He said an 89 octane could be required to be blended with 10 percent ethanol. He said this new production would allow a new plant.

Representative Mueller said the committee should review the bill that was presented two years ago with refinements, if needed, and a version of the Iowa law.

Representative Kingsbury said the renewable fuels standard in fact creates a mandate to use ethanol.

Senator Wanzek said a carrot might work better than a stick. He said it might be better to determine

how to encourage the use of ethanol rather than mandate it.

Senator Bowman said he would like to see all the players get together and present to legislators a plan they would be willing to support.

Senator Wanzek said he could be the one to work with the interested parties and present a bill draft to the committee for its consideration. He said he would look at something similar to the Iowa legislation.

Senator Nichols suggested also looking at the 2001 ethanol mandate bill.

Representative Nelson said he could support the Iowa example, but he questions whether that will be possible in the next budget cycle.

Chairman Wanzek said when the bill drafts are prepared, they would be submitted to the interest groups and to the appropriate state agencies so they can be reviewed and commented upon at the next meeting.

Genetically Modified Organisms

Representative Mueller said a committee could be created which would have some control over the release of genetically modified wheat in North Dakota. He said he would work with Legislative Council staff to prepare such a bill draft.

Senator Bowman said he would work with Legislative Council staff to prepare a proposal under which both organic farming and genetically modified crop production can take place.

Senator Wanzek said if liability and risk are concerns, the approach must be from the perspective of all producers.

Representative Mueller said Dr. Wilson set forth a host of issues that need to be addressed--segregation, handling systems, testing, etc. He said there will be changes in tolerance levels but the implementation of such changes will take some time.

Senator Wanzek said there is a great deal of information that could still be collected on all the study topics. He said the question that committee members need to ask themselves is, realistically, given the fact that the harvest will be underway soon, how many more days will they be able to set aside for committee meetings.

No further business appearing, Chairman Wanzek adjourned the meeting at 4:15 p.m.

L. Anita Thomas
Committee Counsel

ATTACH:23