

AGEC321, Fall 2011

Take-home Practice Problems

Due date: September 20, 2010, 5:00 p.m.

1. Read the article titled “College organic, sustainability programs growing” on the next page. Then, using basic supply and demand intuition, do the following:
 - Write a paragraph that describes what has occurred in the organic product market. I want to see that you are able to describe the logic behind the changes in the organic market during the past 10-20 years. Make sure to describe the changes in the supply, demand, quantity supplied, quantity demanded, and prices in the organic product market.
 - Using a supply and demand diagrams, illustrate what has happened in the organic product market. Clearly label all of the components of the diagram, so that it is clear what component of the market changed and in which direction.
 - How will the increasing number of college organic programs affect the organic product market? Why?



College organic, sustainability programs growing

By SHANNON DININNY, Associated Press – Aug 15, 2011 5

PULLMAN, Wash. (AP) — Misha Manuchehri slowly picks her way through plots of barley, wheat and peas. Every so often, the graduate student in crop science at Washington State University stoops to pluck an errant weed at a farm just off campus.

With a bachelor's degree in organic agriculture already under her belt, Manuchehri plans to continue her studies and ultimately find work in sustainable agriculture.

Plenty of others are doing the same at dozens of universities that now offer courses, certificates or degree programs focused on organic and sustainable agriculture. Experts said those graduates shouldn't have trouble finding jobs as the agriculture industry replaces aging farmers — the average age of a U.S. farmer is 57 — and farmers increasingly look to diversify their operations.

"We're always looking at the university for our future ag workers," said Roger Pepperl, spokesman for Wenatchee, Wash.-based Stemilt Growers, the nation's largest organic tree fruit producer.

Thirty percent of Stemilt's crops are organic, comprising 3 million boxes of apples, pears, cherries, peaches and nectarines annually.

Organic and sustainable specialists don't just bring their unique skills to the farm, Pepperl said, "but can make our conventional farming better, too."

He noted, for example, that such specialists have new ideas about methods for handling pests, fungus and weeds that use fewer chemicals, making them environmentally preferable and potentially less expensive.

Washington State University, which already offered an organic agriculture degree, recently became the first school in the country to offer an organic agriculture certificate online. At the University of California-Davis, students are enrolling in a new sustainable agriculture and food systems program this fall.

Experts said the growth in alternative agriculture programs is fueled by continued consumer demand for food seen as healthier and rising demand for food that is produced on sustainable farms that are environmentally responsible and treat workers and animals humanely.

In 2003, the Organic Farming Research Foundation in Santa Cruz, Calif., surveyed land-grant universities about their organic programs. They asked about student-farm acres devoted to organics, the number of courses and degree programs.

The group found that few of the universities had invested much time or money in organic programs.

A similar survey this year has shown different results, said Jane Sooby, a grants program director.

"I haven't finished crunching the numbers yet, but I'm finding a huge acceptance of organic at many of these schools," Sooby said.

Some of these programs have been launched in states that had little organic activity in the past, she said.

This increased focus on organics and sustainability comes amid a long-term trend toward greater education of U.S. farmers.

Curtis Miller, director of education for the American Farm Bureau Foundation, the education arm of the American Farm Bureau, noted that about one-quarter of all farmers today have bachelor's degrees and close to 70 percent have some college coursework. That's up from just 4 percent of farmers and ranchers who had college degrees in 1965.

"Everybody's going back to school because you have to. We know that equals earning potential and survivability on and off the farm," Miller said. "No matter how you raise your food, fiber or fuel, this diversification includes a lot of these educational programs."

Washington state is No. 2 in the country in the value of organic production, behind California. About 9 percent of U.S. organic production comes from Washington, compared with 33 percent from California.

For that reason, Miles McEvoy called Washington State University's organic program "forward thinking."

McEvoy headed the Washington state Department of Agriculture's organic program before being tapped to take over the U.S. Department of Agriculture's organic program in 2009.



Photo 1 of 2



Misha Manuchehri, a Washington State University graduate student in crop science, searches for weeds in her crops near Pullman, Wash. on Aug. 3, 2011. An increasing number of universities, including WSU, are offering organic and sustainable agriculture programs. (AP Photo/Shannon Dininny)



Map



"Organics are growing. Not at the same rate as a few years ago, but it's still a growth area," he said. "So those farms and processors and other people involved in organic agriculture, they need people who have experience in that area."

In California, organics have been studied at universities for years. Now the University of California at Davis is turning its attention to sustainable agriculture.

Tom Tomich, director of the school's Agricultural Sustainability Institute, said sustainability takes into account global issues, which he argued would become increasingly important in the future because food and agriculture are so central to issues revolving around the environment, hunger and treatment of workers.

"In terms of education, we're going to need a new generation of educators who can frame the great issues of this century from this perspective," he said.

That's in line with what Manuchehri sees for her future. With an undergraduate degree in organics, her graduate work and possibly a PhD, she hopes to find work maintaining the balance between conventional and organic agriculture. She also wants to focus on sustainability issues, helping farms protect the environment while maintaining profits that keep them viable.

"Sustainability is just as important, and I don't think sustainability and organic is the same thing," she said. "There are some great conventional farms that are extremely sustainable, and I could easily see myself working for them."

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2. Read the article title “NC governor: Storm damage tops \$400 million” on the next page. Then, Then, using basic supply and demand intuition, do the following:

- Write a paragraph that describes what has occurred in North Carolina’s agricultural market. I want to see that you are able to describe the logic behind the changes in the agricultural market. Make sure to describe the changes in the supply, demand, quantity supplied, quantity demanded, and prices.
- Using a supply and demand diagrams, illustrate what has happened in North Carolina’s agricultural market. Clearly label all of the components of the diagram, so that it is clear what component of the market changed and in which direction.
- What might be the long-term effects of the losses of machinery and equipment due to the storm? Why?

NC governor: Storm damage tops \$400 million



 [Slideshow](#)

Helen Miller, 80, gives up on sweeping her walk from storm debris on August 28, 2011 in Maribel, North Carolina. [Hurricane Irene](#) made landfall in North Carolina creating a [storm surge](#) of up to eight feet in some areas of the Pamlico Sound. (Sara D. Davis, Getty Images)

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RALEIGH, N.C. (AP) — North Carolina's governor says preliminary losses from Hurricane Irene now top \$400 million in North Carolina.

Gov. Beverly Perdue said Friday that agricultural losses represent the bulk of the figure, at more than \$320 million. They're followed by local government costs of more than \$45 million and uninsured or underinsured home and business damage of more than \$40 million.

Perdue has asked U.S. Agriculture Secretary Tom Vilsack for a major disaster declaration for 43 counties in eastern North Carolina. She says that without help, many farms will go out of business. The declaration would allow the department to provide low-interest loans and other federal assistance.

Damaged crops include corn, cotton, peanuts, sweet potatoes and tobacco. Also damaged were swine and poultry, along with farm buildings, machinery and equipment.

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3. Suppose that you are producer of hay from alfalfa. You know that the demand for hay is $Q_{hay}^D = 450 - P_{hay}$. In order to produce the hay, you'll need to seed and fertilize your fields and have a custom operator cut and bale the hay. The cost of seeding and fertilizing is \$60/ton of produced hay. Custom workers have a labor function $Q^L = 210 + P$

Solve for the following:

- (a) Equilibrium quantity of hay.
- (b) Equilibrium price of hay.
- (c) Equilibrium quantity of labor.
- (d) Equilibrium price of labor.

Additionally, illustrate the equilibrium values of hay and labor on a single supply and demand diagram.

4. Use the information supplied in problem (3). Assume that the price of fertilizer increased by \$30/ton of hay production.

Solve for / answer the following:

- (a) Equilibrium quantity of hay.
- (b) Equilibrium price of hay.
- (c) Equilibrium quantity of labor.
- (d) Equilibrium price of labor.
- (e) Who benefited? Who is worse off?