Sustainable agriculture practices in home gardening/ Disseminating research-based information applicable to both rural and urban clientele in Central Iowa

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Sustainable agriculture practices in home gardening/ Disseminating research-based information applicable to both rural and urban clientele in Central Iowa

Abstract
From 1992 through 1996, the Central Iowa Education Delivery Team (EDT) completed a variety of projects.

Keywords
Human systems, demographics and beginning farmer programs

Disciplines
Agricultural Education

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Sustainable agriculture practices in home gardening/ Disseminating research-based information applicable to both rural and urban clientele in Central Iowa

Background
From 1992 through 1996, the Central Iowa Education Delivery Team (EDT) completed a variety of projects. Among their educational initiatives were the demonstrations, displays, and educational materials listed here:

• "Iowans, Living with Nature" display, 1992-1994
• "Insects, Friends or Foes?" display, 1994-1996
• Contour strip intercropping demonstrations, 1994
• Lawn spreadsheet, 1993-1994
• Filter strips, 1993-1994
• Corn gluten meal demonstration, 1995-1996

Results and discussion
"Iowans, Living with Nature" display, 1992-1994. This display’s theme stressed that farmers and urban dwellers share the challenge of protecting our soil and water resources. Pictures used on the display depicted a farmer practicing no-till planting into standing corn stalks, a farmer using ridge-till to cultivate crops, the N-Trak kit sold by Hach Chemical of Ames which helps gauge the amount of nitrogen in the soil, strip intercropping, multiple uses of available land, raised bed gardening, and management of a compost pile.

The display was exhibited for 11 days at the Iowa State Fair in 1992, for 65 days at ten locations in 1993, and for 15 days at six locations in 1994. A second display was built in 1993 because more than one was needed to appear at county fairs and other educational efforts occurring simultaneously.

People visiting the display also received educational materials and training on the need to do soil testing before applying lime, nutrients, and pesticides to lawns and gardens. An evaluation form was sent to 933 people who signed up to receive the Leopold Center newsletter. Eighty-one percent of those responding said the display prompted them to think about what they could do to protect soil and water resources.

"Insects, Friends or Foes?" display, 1994-1996. First designed and exhibited in at the 11-day run of the Iowa State Fair in 1994, this four-panel display has been extremely popular. The EDT worked with Donald Lewis, ISU Extension entomologist, to produce the display which explains IPM principles such as identification, life cycle, economic injury level, and control strategies. The IPM tenets are shown along with information about 11 different insects and spiders. The display can be tailored for use with specific audiences and the nature of the information makes it less likely to become out-dated. In 1995, the insects display was exhibited for 20 days at three locations and in 1996, the display appeared in two locations for 16 days. Polk County Master Gardeners felt that this display was more effective...

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Bill Turner
Polk County Master Gardener, Des Moines; Polk County Master Gardener Alumni Board

Budget:
Team leader John Creswell explains that sedimentation boxes are better than a textbook for illustrating how vegetative filter strips help to reduce soil erosion.

than the more complex "Iowans, Living with Nature" presentation.

Lawn spreadsheet program, 1993-1994. A lawn spreadsheet program, designed for Excel, was developed to assist homeowners in calculating a lawn's square footage, and then determining how much nitrogen and pesticide to apply per 1,000 square feet. Another computer program was designed to help homeowners calibrate a lawn fertilizer spreader. Copies of the program were sent to 68 ISU Extension offices, the Region 5 U.S. Environmental Protection Agency Office in Chicago, and individuals.

User evaluations determined that the program was too complex; it required the user to be computer-literate as well as knowledgeable about general lawn maintenance. Extension staff and master gardeners were able to use the program effectively only after training was provided. In 1994, master gardeners in Dallas and Polk counties were given an opportunity to have one soil sample from their yard or garden analyzed for free by the ISU Soil Testing Laboratory, if they would agree to enter the soil test and other lawn data into this spreadsheet based-program.

Filter strips, 1993-1994. Funds to demonstrate the effectiveness of filter strips in highly erosive fields were provided to County Extension Education Directors in six Iowa counties served by John Creswell, Extension Field Specialist. Counties participating were Dallas, Greene, Jasper, Marshall, Polk, and Story.

Sediment (box) traps were constructed and filter strips established by producer cooperators and county Soil Conservation Service and Extension personnel. The traps (designed by Richard Cruse of the ISU Agronomy Department) were placed in fields (in strips and in bare soil) to demonstrate the value of filter strips in reducing soil movement into surface waters. Field demonstrations were held in five of the six counties. (Weather conditions in 1993 made it difficult for cooperators to establish filter strips and hold tours.) Responses to the evaluation form used at four of the tours showed that participants were highly impressed with the proven effectiveness of filter strips in reducing sediment runoff in surface waters. A fact sheet explaining use and construction of the sediment boxes was developed in 1994 by John Creswell and the Leopold staff.

In 1994, two contour strip intercropping demonstrations were established in central Iowa (one each in Dallas and Marshall counties) by producer cooperators, ISU agronomist Richard Cruse, and county Soil Conservation Service and Extension staff. These demonstrations were created because non-livestock producers on highly erodible land (HEL) with Soil Conservation Service plans will, in many instances, be expected to plant continuous no-till corn. Yields may decline over a period of years. The contoured, strip intercropping systems should maintain or perhaps improve yields, while reducing soil loss.

Sediment traps from the 1993 study were used to determine if soil loss was significantly reduced on HEL. The first year was a set-up and learning year for the producer-cooperators. In subsequent years, demonstration tours were held, and yield and crop enterprise records were collected, analyzed, and reported.

In 1995, John Creswell stepped down as leader of the education team. He was replaced by Polk County Extension Education Director Barbara Hug. The emphasis for the project in 1995-6 was Polk County Master Gardener programs.
Corn gluten meal demonstration, 1995-1996. In addition to being used as livestock feed, corn gluten meal has shown efficacy in controlling weeds in turf and in strawberries. The purpose of the 1996 project was to replicate the 1995 corn gluten meal demonstration to see if the same results were obtained. The excessive rain in spring 1995 and heat in summer 1995 rendered some of the results questionable.

The ISU demonstration garden in Urbandale was again used for the project. The 15 by 10 foot demonstration area located in the vegetable section of the garden was divided into four plots; two received herbicide applications, one was treated with Dachtal, one with Preen; one plot was treated with corn gluten meal, and one was left untreated served as a control plot. Crops planted were tomatoes, peppers, and eggplant from plants; chard, leaf lettuce, squash, artichokes, and corn from seed. No root crops were planted because the corn gluten meal had clearly stunted their growth in 1995. Master gardeners took charge of preparing, planting, and caring for the plots.

Once again heavy spring rains fell on the gardens. This delayed some planting and probably affected the performance of all three products. The corn gluten meal appeared to have no effect on control of broadleaf weeds, but some effect on grasses, especially crabgrass. Pellet corn gluten meal had a little more longevity and strength, perhaps because it didn't wash away so easily. The Dachtal had some initial effect on all weeds, but no effect later in the season. Preen had no effect on broadleaf weeds. (It is believed that rain washed away or diluted some of the commercial products, diminishing their effectiveness.)

Educational programs held at the demonstration garden reached 43 people who were convinced by viewing the weeds that corn gluten meal was an ineffective general herbicide for the home vegetable garden even though it has been tested and approved for other uses. This confirmed that research-based information is needed when teaching horticultural practices, and that weather plays an important role in demonstration projects.

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