

ACCESSION NO: 0219729 **SUBFILE:** CRIS

ROJ NO: PEN04359 **AGENCY:** NIFA PEN

ROJ TYPE: OTHER GRANTS **PROJ STATUS:** TERMINATED

CONTRACT/GRANT/AGREEMENT NO: 2009-49400-05869 **PROPOSAL NO:** 2009-03822

START: 01 SEP 2009 **TERM:** 31 AUG 2012

GRANT AMT: \$733,821 **GRANT YR:** 2009

INITIAL AWARD YEAR: 2009

INVESTIGATOR: DuPont, S. T.; Berry, J.; Leiby, R.; Swackhamer, E.; Hautau, M.; Miller, D.; Frankenfield, A.; Foulk, J.; Conklin, M.; Fournier, M.; Firestine, M.

PERFORMING INSTITUTION:

PENNSYLVANIA STATE UNIVERSITY

08 MUELLER LABORATORY

UNIVERSITY PARK, PENNSYLVANIA 16802

SOUTHEAST PENNSYLVANIA BEGINNING FARMER AND RANCHER PROGRAM

NON-TECHNICAL SUMMARY: Rich soils, proximity to markets and increasing consumer support for local food, provide bountiful opportunities for new farmers in Southeast Pennsylvania. In response, diverse groups of students, retired executives, women, and gardeners aspire to start and expand new farm enterprises in the region. The goal of this program is to increase the success of beginning farmers and ranchers in the Southeast Region of Pennsylvania. Success will be measured not only by the numbers of new farms and farmers, but also by their ability to be profitable, productive, environmentally sound, and engaged in their communities. Beginning farmers and ranchers in the region will be trained in production, marketing, financial management and land acquisition skills necessary for successful farm entry. Program activities will address the three main barriers to farm entry: lack of training, land and capital. An eight week introduction to farming will be taught in three counties each year. Intensive training courses in ten production and marketing areas will be available for new farmers who are ready to make serious steps toward building their new farm business including: Sheep Management, Sheep Shearing, Novice Farmer Study Circles, Grazing School, Organic Vegetables, Fruit Production, Exploring the Small Farm Dream, Potato Production, and Soils. The Lehigh County Agricultural Incubator will serve as a living classroom where potential farmers can learn diverse production strategies. New farmers will start their new businesses on county owned land with reduced land and equipment rental rates. Pennsylvania Farm Link will provide training in land and capital acquisition. As a result of this project four hundred and sixty-five beginning and aspiring farmers will increase knowledge in production, marketing, financial management and land acquisition strategies and intend to implement new techniques critical for their success each year. Participants will increase the productivity, profitability and environmental stewardship on their farms. Fifteen successful new farms per year will be established.

OBJECTIVES: The goal of this program is to increase the success of beginning farmers and ranchers in the Southeast region of Pennsylvania. Beginning farmers and ranchers in the region will be trained in production, marketing, financial management and land acquisition skills necessary for successful farm entry. 180 beginning farmers learn basic crop, soil fertility, pest and disease management, and farm market and business planning techniques per year in an introductory course. 285 beginning farmers receive intensive training in one or more areas per year. Participants in intensive courses increase knowledge in production, marketing, financial management and land acquisition strategies and intend to implement new techniques. 6-18 aspiring farmers per year implement new farm businesses as part of the Lehigh County Agricultural Incubator. 15 new farmers per year successfully begin a new farm enterprise. Courses will be offered in eight counties of Southeast Pennsylvania including: Berks, Bucks, Chester, Lehigh, Montgomery, Northampton, Philadelphia and Schuylkill. Course participants will be drawn from a wider area also including: Carbon, Dauphin, Delaware, Lancaster, Lebanon, and Monroe counties in Pennsylvania, and Burlington, Hunterdon, and Mercer counties in New Jersey. Web-based information will be applicable to new farmers throughout the Northeast. Success will be measured not only by the numbers of new farms and farmers in the region, but also their ability to be profitable (netting at least 50% of farm income from the farm), productive, environmentally sound and engaged in their communities. Four hundred and sixty-five beginning and aspiring farmers will increase knowledge in production, marketing, financial management and land acquisition strategies and intend to implement new techniques critical for their success each year. Participants will increase the productivity, profitability and environmental stewardship on their farms. Fifteen successful new farms per year will be established.

APPROACH: Program activities will include four main activities: an introductory course for new farmers, intensive training courses in ten main production and marketing areas, collaboration with PA Farm Link to establish a yearly

and capital acquisition workshop, and collaboration with the Lehigh County Agricultural Incubator. Introductory course for New Farmers- An eight week course for new farmers will be taught in three counties each year. The course is targeted to individuals exploring or in the first few years of a new farm business. Evening meetings in February and March will cover topics including market and business planning, soil fertility, pest and disease management, crop planning, poultry and livestock. The course will be complimented by a Saturday field trip to local farms. The course will be taught by a team of Cooperative Extension educators. Each educator will teach the topic for which he or she is the regional expert for the area in each of the participating counties. Intensive Training Courses- Intensive training courses will be available for new farmers who are ready to make serious steps toward building their farm business and those seeking ideas for innovations and increased farm profitability. Emphasis will be on creating a farm plan in order to implement newly acquired techniques and skills. Some of these courses have been taught and refined over the course of a number of years in one or more counties. The new collaboration supported by this grant will allow us to expand the offerings to multiple counties. The teaching team will conduct the course in two to three counties each year on an alternating schedule. Other courses are new. A pilot will be run in year one. In year two and three, new courses will be refined and offered to a larger group of participants. Courses will include Sheep Management Basics, Sheep Shearing School, Novice Farmer Study Circles, Grazing School, Organic Vegetable Production, Fruit Production Short Course, Exploring the Small Farm Dream, Introduction to Potato Production, Introduction to Soils, and Food for Profit. Partnership with the Lehigh County Agricultural- Incubator The Lehigh County Agricultural Incubator is intended to serve as a model for sustainable small-scale agricultural enterprises. Farming technique demonstrations at the agricultural incubator will provide farm apprentices and stewards as well as participants in field days and classes with experience comparing diverse production methods allowing them to strategically choose which tools to use on their future farms. Demonstration projects will include tillage techniques, seeding/transplanting strategies, and weed control techniques. Emphasis will be on demonstrating techniques appropriate for a range of farm scales and capital investment intensities. Land Acquisition Workshops- Pennsylvania Farm Link will collaborate with Penn State Cooperative Extension in the Southeast Region to develop and carry out two day-long workshops per year focused on three barriers to farm entry - access to land, capital and equipment.

PROGRESS: 2009/09 TO 2012/08

OUTPUTS: To date, the Southeast Pennsylvania Beginning Farmer and Rancher Program, "Start Farming," has produced 58 program brochures including a yearly calendar of events, one new website, 126 blog articles, ten fact sheets, and nine videos. One thousand three hundred fifty-four new and beginning farmers participated in 53 courses in nine counties. All courses were face-to-face combining classroom, on-farm demonstration and field visits, with one to eight sessions per course. One incubator program was established training 16 apprentices, 146 workshop participants and hosting two incubator farmers. The demographics of the participants who attended face-to-face workshops and completed evaluations, were as follows: 6% (46) socially disadvantaged, 10% (75) limited resource, 30% (149) farm workers, 47% (357) female (n=756), and 13% (84) farming less than one year, and 38% (251) currently farming (n=668). The Start Farming website had 36,098 visits by 27,438 unique visitors. Many return for new content each month, with 39% returning visitors, 20% having visited 9 to 200 times. While most visitors are from the United States, 4,214 visitors were from Canada, India, South Africa, England, the Philippines, Pakistan, Ireland and New Zealand. PARTICIPANTS: Lehigh County's Seed Farm Agricultural Incubator provided intensive training for 16 apprentices and two incubator farmers and served as a living classroom where new and potential farmers were able to learn seeding/transplanting, tillage and weed management techniques appropriate for a range of farm scales and capital investment intensities. The seeding and transplanting trial compared three hand seeding (Glazer, European push and Earthway seeders), one tractor seeder (Planet Junior), two transplanting (water wheel, two row), and two greenhouse methods (block and plug). The tillage demonstration included a comparison of primary tillage tools including a three bottom moldboard plow, a seven tooth chisel plow, and a 75-inch Celli Spader. The secondary tillage demonstration included a comparison of seven foot disks and rototilling with a walk-behind BCS tractor. The weed management trial included a comparison of various mulching options (tomatoes in black plastic, straw, or landscape fabric), mechanical cultivation tools (I&J two-row cultivator, Williams tool system with side knives and tine weeder), and various types of weed control appropriate for small scale production (hand hoes, wheel hoes, and flame weeding). During three farming seasons, 16 Seed Farm apprentices and two agricultural incubator stewards gained extensive knowledge of all of the equipment and techniques demonstrated. In addition, 182 participants through classes and field days learned about the tillage, seeding/transplanting and weed management tools and techniques. Two summaries of the equipment demonstrations were also published in the Penn State Sustainable Agriculture newsletter and Start Farming blog reaching a total of 1,370 readers. Articles were read online by 525 individual users. One

hundred percent (21) of participants in the 2012 equipment workshop said they learned something that will allow them to choose an appropriate tool/equipment for their operation. Seventy-six percent (16) felt the better equipment choices would allow them to improve the profitability of their farms. Pennsylvania Farm Link cooperated to put on the Breaking the Barriers workshop. Breaking the Barriers was very successful; 141 participants from Southeast and Central Pennsylvania, New York and Maryland gained valuable knowledge and insight through three workshops (one per year). Ninety percent of participants rated their knowledge as moderate/considerable on "land access," 91% on "what lenders are looking for," and 89% on "strategies for acquiring equipment" after the class (n=79) as compared to 60% on "land access," 43% on "what lenders are looking for," and 30% "strategies for acquiring equipment" before the class. TARGET AUDIENCES: The demographics of the participants who attended face-to-face workshops and completed evaluations, were as follows: 6% (46) socially disadvantaged, 10% (75) limited resource, 20% (149) farm workers, 47% (357) female (n=756), and 13% (84) farming less than one year, and 38% (251) currently farming (n=668). PROJECT MODIFICATIONS: Nothing significant to report during this reporting period.

IMPACT: 2009/09 TO 2012/08

The Southeast Pennsylvania Beginning Farmer and Rancher project met its goal to increase the success of beginning farmers and ranchers in the region. Program success is evident, not only by the number of participants, with 1,354 compared to the 1,395 projected, but also by the impact on their ability to be profitable, productive and environmentally sound, indicators of success which will keep new farm businesses viable. We surveyed participants immediately after course completion to measure program impact on new farmer knowledge and skills critical to success. Eighty-four percent (682) of participants attending courses said their knowledge increased a moderate or a great deal as a result of courses attended, 57% (462) said they learned a great deal (n=812). Participants in intensive courses took key concept quizzes before and after course participation. The average score on pre-tests was 46%. After the course, scores averaged 80% representing a demonstrated increase in knowledge. The average increase was 35% (n=392). 81% (660) of participants planned to adopt at least one new practice, and 59% (480) planned to adopt two or more practices as a result of classes attended (n=815). 36% (235) planned to continue farming and 39% (255) planned to start farming (n=654). Follow up surveys for participants who completed courses in 2010 and 2011 showed adoption of new practices which improved productivity, quality, and farm environmental sustainability. Eighty-three percent (136) adopted new farming/land management practices. On average, they adapted three new practices and 44 new farming/land management practices were adopted by 164 respondents. 67% (110) saw improved productivity increase due to new practices they adopted. 55% (90) noted their new practice had improved their products' quality. 24% (39) felt new practices improved profitability. 80% increased their environmental sustainability as a result of the new practices they had adopted (n=164). 14% (25) had started farming and 40% had continued farming (n=184). An example of new farmer success is Good Work Farm. Anton Shannon and Sarah Edmonds graduated from The Seed Farm apprenticeship including three Penn State Extension courses in 2010. After completing their farm plan, they were accepted to The Seed Farm Incubator. Good Work Farm provides food for 75 CSA members. Sarah says what she learned in the program, "was all so important and most every venture showed me how much I didn't know about the various stages of full farm planning." Anton says, "All of the things that capital lenders are looking for are things The Seed Farm is helping us achieve: a proven business history, paying bills, marketing our crops, tracking our yields and our sales, exploring market potential, managing labor and time, coming up with production plans and production contingencies. The Seed Farm is providing GWF with a living laboratory for us to test our production and sales techniques with scalable resource access. Our farm made a net profit in a year that included drought, a hurricane, prolonged flooding, and October snowfall. That very may well have finished off our new farm, not for The Seed Farm."

PUBLICATIONS (not previously reported): 2009/09 TO 2012/08

- . DuPont, S. T. 2012. Where Do I Put My Crops Planning a Crop Rotation from the Start. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0032.
- . DuPont, S. T. and B. K. Gugino. 2012. Diagnosing a Plant Problem 101. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0033.
- . DuPont, S. T. and B. K. Gugino. 2012. Ecological Disease Management. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0034.
- . DuPont, S. T. and A. Grantham. 2012. Managing Soils. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0035.
- . DuPont, S. T. and B. K. Gugino. 2012. Plant Disease Basics. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0036.

- . DuPont, S. T. 2012. Potting Media and Plant Propagation. The Pennsylvania State University 2012. Start Farming factsheet. CODE #EE0037.
- . DuPont, S. T. 2012. Seed and Seedling Biology. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0038.
- . DuPont, S. T.. 2012. Selecting the Right Seeding and Transplanting Strategies. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0039.
- . DuPont, S. T. 2012. Soil Quality. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0040.
- . DuPont, S. T. 2012. Creating a Weed Management Plan for Your Organic Farm. The Pennsylvania State University 2012. Start Farming Factsheet. CODE #EE0041.

PROGRESS: 2010/09/01 TO 2011/08/31

OUTPUTS: To date, the Southeast Pennsylvania Beginning Farmer and Rancher Program, "Start Farming" has produced 37 program brochures including a yearly calendar of events, 1 new website, and 69 blog articles. 953 new and beginning farmers participated in 36 courses in 9 counties. All courses were face-to-face with 1 to 8 sessions per course. The demographics of the participants who attended face-to-face workshops, and completed evaluations, were as follows: 8% (40) socially disadvantaged, 11% (59) limited resource, 18% (95) farm workers, 48% (246) female (N=515), and 14% (59) farming less than 1 year, and 53% (223) currently farming (N=424). **PARTICIPANTS:** Lehigh County was a sub-award on this project. The farming technique demonstrations at the agricultural incubator provided farm apprentices and 2 stewards, as well as 80 participants in field days and classes with experience comparing diverse production methods allowing them to strategically choose which tools to use on their future farms during 2011. Demonstration projects included seeding/transplanting strategies, and weed control techniques. The Seeding and Transplanting trial compared: three hand seeding (Glaser, European Push and Earthway seeders), one tractor seeder (Planet Junior), two transplanting (water wheel, two row), and two greenhouse methods (block and plug). Weed Control demonstrations included: black plastic mulch, rye straw, wheel and hand hoeing, and the Williams Tool system. There was a noticeable difference in seeding rates with the three push seeders. The Glaser and the European push seeder did not perform well for seeding carrots. The Earthway tends to overseed carrots and beets, resulting in the need for thinning. During transplanting demonstrations all participants agreed that on a small scale hand transplanting is easier and faster than using a tractor mounted transplanter. Many of the planned weed management trials did not occur this season due to challenging weather. Pennsylvania Farmlink cooperated to put on the Breaking the Barriers workshop. Breaking the Barriers was very successful, 117 participants from Southeast, Central Pennsylvania, New York and Maryland gained valuable knowledge and insight through 2 workshops (one per year). 100% of participants rated their knowledge as moderate/considerable on "land access," 91% on "what lenders are looking for," and 89% on "strategies for acquiring equipment" after the class (n=79) as compared 30% on "land access," 43% on "what lenders are looking for," and 30% "strategies for acquiring equipment" before the class. **TARGET AUDIENCES:** Not relevant to this project. **PROJECT MODIFICATIONS:** Nothing significant to report during this reporting period.

IMPACT: 2010/09/01 TO 2011/08/31

Immediately after completion of courses participants were surveyed. 83% of participants attending courses said their knowledge increased a moderate or great deal as a result of courses attended, 58% said they learned a great deal (N=544). Participants in intensive courses took key concept quizzes before and after course participation. The average score on pre-tests was 49%, after the course scores averaged 81% representing an increase in real knowledge. The average increase was 31% or 3 letter grades. 84% of participants plan to adopt at least one new practice, and 57% plan to adopt two or more practices as a result of classes attended (N=521). 46% plan to continue farming and 45% plan to start farming (N=424). One year after completion of courses participants were surveyed. 89% adopted new practices as a result of new farmer training participation. On average they adapted 4 new practices. 88% adopted new farming/land management practices. 43% saw improved productivity increase due to new practices they adopted. More than half, 58%, noted their new practice had improved their products' quality. 49% increased their environmental sustainability as a result of the new practices they had adopted (n=72). 10% of respondents were not farming, 47% had started farming (n=104).

PUBLICATIONS: 2010/09/01 TO 2011/08/31

no publications reported this period

PROGRESS: 2009/09/01 TO 2010/08/31

OUTPUTS: To date, the Southeast Pennsylvania Beginning Farmer and Rancher Program, "Start Farming" has produced 20 program brochures including a yearly calendar of events, 1 new website, and 20 blog articles. In year

ne: 323 new and beginning farmers participated in 16 courses in 6 counties. All courses were face-to-face with 1 to 8 sessions per course. The demographics of the participants who attended face-to-face workshops, and completed evaluations, were as follows: 17% (23) socially disadvantaged, 22% (29) limited resource, 10% (13) farm workers, 52% (56) female, 7% (12) farming less than 1 year, and 51% (88) currently farming. Note that only 133 participants completed evaluations asking for demographic information for USDA disadvantaged groups categories and only 171 answered the questions are you currently farming or farming less than one year. PARTICIPANTS: Lehigh County was a sub-award on this project. The Seed Farm, a Lehigh County project completed a seeding and transplanting trial. 6 apprentices learned production strategies through on farm training and courses. 24 participants in Introduction to Organic Vegetable Production learned seeding and transplanting techniques, as well as weed, insect and disease control at the Seed Farm. Apprentices found that producing transplants in plastic trays was significantly faster and easier than making soil blocks. The Earthway was the most versatile of the seeders, according to Seed Farm apprentices, other seeders were useful for specific crops. Pennsylvania Farmlink cooperated to put on the Breaking the Barriers workshop. News releases were sent to 10 publications. Breaking the Barriers was very successful, 59 participants from Southeast, Central Pennsylvania, New York and Maryland gained valuable knowledge and insight throughout the day. 95% of participants rated their knowledge as moderate/considerable on "land access" and "what lenders are looking for" after class, compared to only 28% / 50% before class. TARGET AUDIENCES: Nothing significant to report during this reporting period. PROJECT MODIFICATIONS: Nothing significant to report during this reporting period.

IMPACT: 2009/09/01 TO 2010/08/31

1% of participants attending introductory workshops said they learned a great deal or a moderate amount, 38% said they learned a great deal. Of 133 participants in intensive courses the average increase in real knowledge was 35%. 44% of participants plan to adopt at least one new practice as a result of classes attended. 51% plan to continue farming and 26% plan to start farming. Introduction to Soils - 25 participants. On a key concepts quiz, participants scored 60% on average before the course and 85% after the course -representing a gain in real knowledge. 100% plan to use a soil test and 9 of 15 plan to use a cover crop after completing the course. Pasture Management Short course - 22 new farmers. 100% of participants felt their knowledge of pasture management increased a great deal as a result of this class. On average participants plan to do 6 of 10 best management practices including; soil testing, liming, fertilizing, rotating and removing livestock from pastures when grass is not growing, after this class. Sheep shearing Course - 12 participants. 67% of participants said they "improved their sheep shearing skills a great deal" as a result of this class. Cumulatively, participants plan to shear 121 sheep as a result of their new skills. Living on a Few Acres - 62 new farmers. On average 86% felt they had moderate or considerable knowledge in seven key areas after this course compared to only 28% before the class. 50% of students plan to take a soil test and 71% plan to practice PM as a result of what they learned in Living on a Few Acres. Exploring the Small Farm Dream - 37 aspiring farmers. 91% of students felt they learned a good or great deal from the course. 94% feel they are better able to answer the question "Am I ready to start an agricultural business." Backyard Poultry - 36 small-scale producers. 46% of participants said they learned a great deal from this course. Fly control, nutrition and health were topics of great interest. 82% of participants learned a moderate or great deal of information in these areas. Grazing School - 36 grazers. 96% of participants learned a moderate or great deal from this class. 11 students plan to establish smaller paddocks. This will increase their ability to rotate and increase pasture and animal health. 12 students plan to install watering systems and fencing to maximize pasture intake. Introduction to Organic Vegetable Production - 24 students in a key concept quiz for organic weed management students scored 98% after this class and only 33% before. As a result of this class 15 new farmers will take a soil test to determine proper nutrient applications, and 13 will establish a cover crop to increase soil health, and reduce erosion. Breaking the Barriers - 62 participants. 95% of participants rated their knowledge as moderate/considerable on "land access" and "what lenders are looking for" after class, compared to only 28% / 50% before class. The Seed Farm - A Lehigh County Agricultural Incubator Project - During the 2010 season seeding and transplanting techniques were trialed at the Seed Farm.

PUBLICATIONS: 2009/09/01 TO 2010/08/31

0 publications reported this period