

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

4-H Youth Development

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|-------------------|-----------------|-----------------|----------------|----------------|
| 724 | Healthy Lifestyle | 10% | | 0% | |
| 806 | Youth Development | 90% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2014 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 0.0 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 1800919 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 1800919 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 14459705 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

4-H Club enrollment in Illinois totaled 24,011. Slightly more than 158,250 different youth were involved in some type of 4-H program such as after-school group programs, conferences, and camps. Metro Educator positions were established in population areas of over 100,000 and now include 13 educators who are creating opportunities for inclusion for youth of Hispanic ethnicity and other younger youth to become involved in sustained science and/or gardening opportunities and helping older youth to develop civic engagement and leadership skills. Educational priorities for all 4-H delivery systems remain focused on: [1] Learning employment skills; [2] Experiencing healthy relationships; [3] Becoming physically fit; [4] Thinking green; and [5] Engaging in science.

Several activities and programs focused on youth career exploration and workforce preparation. **Illinois Summer Academies** three-day conferences were held on the University of Illinois campus and provided high school teens with opportunities to explore a college campus as well as hands-on workshops to explore potential careers in 4-H science or leadership development training. **Welcome to the Real World**, a multi-disciplinary curriculum and simulation that allows youth ages 12-18 to explore careers and money management [balancing income and expenses] in adult life, was on-going [also discussed in the Agricultural and Consumer Economics planned program].

Illinois has placed a strong emphasis on engaging youth in science that this year included 115 4-H National Youth Science Day events involving 3,500 Illinois youth participants. The events consisted of completing a **Rockets to the Rescue** aerospace engineering experiment to build an aerodynamic food transportation device that could deliver nutritious food to disaster relief victims. The 4-H robotics project involvement increased in enrollment again this year with 4,993 youth enrolled in one of five project options. Forty-five teams participated in the sixth annual Illinois 4-H **State 4-H Robotics Team Competition**. **4-H Tech Wizards**, an initiative designed to establish mentoring programs for at-risk or underserved youth in an after-school setting, continued to engage youth participants at multiple sites this past year. State and national partners played an important role in providing grants to support these science experiences and opportunities for awarding college scholarships.

Cook County continued to offer youth science classes through its Mobile Science Laboratory [bus]. The **4-H Incubation and Embryology program** engaged youth in experiencing hands-on science concepts while caring for and observing the growth process of chicken embryos. **Science Siesta**, designed for girls in grades 4 through 6, introduced 92 of them to fun hands-on science activities and career opportunities. **Advanced Science Siesta** was two days in length and conducted on the University of Illinois engineering campus for 49 female participants. This program aims to dispel myths that science is too difficult, not fun, and more suited to males. The **I Think Green** curriculum was developed by 4-H and horticulture Extension specialists to engage 3rd--5th grade youth in investigating how living things interact with each other and with their environment [also discussed in the Natural Resources and the Environment planned program]. The second year of training **4-H Citizen Scientists** raised the total from 40 to 69 junior and senior high youth who gained skills needed to complete scientific practices in monitoring water quality in their community and then contribute to the Illinois RiverWatch data collection site.

Building youth leadership skills is both a national and Illinois area of focus. At the state level opportunities and training were provided for **Youth Leadership Team** members to plan and conduct conferences and to articulate the impact of the 4-H program to legislators. Youth participants in **Speaking for Illinois 4-H** also demonstrated their skills in articulating the impact of the 4-H program to legislators. Illinois 4-H is also focusing on developing teens as teachers. A grant-funded national program, **4-H Food Smart Families** partnered 4-H with the **Supplemental Nutrition Assistance Program - Education [SNAP-Ed]** in supporting 84 teens who taught more than 1,400 youth at after school programs and summer camps to make healthy food choices [also discussed in the Human Health and Human Development planned program]. What began in four metro areas expanded with support from the Illinois

4-H Foundation to 21 Illinois counties and nearly 500 **Teens as Teachers** in just one year. 4-H Teen Teachers developed, planned, and delivered lessons in such topics as STEM, gardening, and nutrition. More than 75 **Youth Science Ambassadors** were involved in leading and facilitating the **Rockets to the Rescue 4-H National Science Day** event.

Volunteers are a key in delivering 4-H Youth Development programs and are instrumental as caring adults who create an environment that is a critical element of positive youth development. This past year 20,640 volunteers gave their time and talents to the 4-H Youth Development program in Illinois with slightly more than 3,800 serving as club leaders. Leaders had instant access to seven online courses to help them carry out their role. In addition to a basic course orienting new volunteers, other course topics included an overnight chaperone orientation, child protection, parliamentary procedure, working with committees, club program planning, and public presentations. Eighty-seven [87] Illinois volunteers also participated in the Southern Illinois 4-H Leaders Volunteer Forum to learn more about team building, officer training, club retention, and helping members choose projects, as well as 4-H program and activity opportunities beyond their county.

2. Brief description of the target audience

4-H youth development has broadened its target audiences to include youth between the ages of 8 and 19 that focuses on outreach to urban youth including Hispanic youth, military family youth, youth leaders [paid and volunteer], adult and teen teachers, adult leaders of 4-H clubs and other youth-serving organizations, parents, and community members.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2014 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 170391 | 0 | 370854 | 523375 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2014 | Extension | Research | Total |
|---------------|------------------|-----------------|--------------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- No Output Measures For This Fiscal Year

| Year | Actual |
|-------------|---------------|
| 2014 | 0 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Increased Knowledge About Science And Health Careers |
| 2 | Increased Knowledge Of Positive Youth Development |
| 3 | Pursuit Of Higher Education Including Science, Engineering, And Technology Careers |
| 4 | Number Of 4-H Youth Applying Leadership Skills |
| 5 | Presence Of 4-H Club Experiences That Foster Positive Youth Development |
| 6 | Number Of Youth Who Indicate Increased Knowledge of Science, Engineering And Technology |
| 7 | Number Of Youth Indicating Gains In Teaching And Leadership Skills |

Outcome #1

1. Outcome Measures

Increased Knowledge About Science And Health Careers

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increased Knowledge Of Positive Youth Development

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Pursuit Of Higher Education Including Science, Engineering, And Technology Careers

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number Of 4-H Youth Applying Leadership Skills

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Presence Of 4-H Club Experiences That Foster Positive Youth Development

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number Of Youth Who Indicate Increased Knowledge of Science, Engineering And Technology

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2014 | 10500 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Business leaders in Illinois are struggling to find the science, technology, engineering and mathematics [STEM] talent they need to stay competitive. Students need more exposure to challenging and engaging content.

What has been done

The 4-H Incubation and Embryology project has been carried out in elementary school classrooms for over two decades using hands-on science concepts in caring for and observing the growth process of chicken embryos from the inception of the eggs through hatching of chicks. The majority of youth participants were in K-2 classrooms, but youth in grades 3-12 were also engaged in the activities this past year. Curriculum development and training was provided by the Extension poultry faculty member and local educators. Evaluations were collected from 191 teachers in nine counties in Northeastern Illinois to determine their perceptions of impact related to their 12,161 students' science ability gains.

Results

Using a scale of 1-4 [1=Not at all; 2=Sometimes; 3=Usually; 4=Always], grades K-2 teachers were asked to rate their students' level [as a group] with respect to five [5] science abilities, and grades 3-12 teachers were to rate their students' level on ten [10] science abilities after participating in the multi-week 4-H Incubation and Embryology project. Observed increases in at least one of these skills were reported by 86% of the 159 teachers who answered these questions. More detailed results from this evaluation are provided in the Evaluation section of this planned program.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
806 Youth Development

Outcome #7

1. Outcome Measures

Number Of Youth Indicating Gains In Teaching And Leadership Skills

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2014 | 84 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Youth need positive experiences in developing into productive adults.

What has been done

University of Illinois Extension 4-H in conjunction with the Supplemental Nutrition Assistance Program - Education [SNAP-Ed] engaged teens to teach primarily fifth-grade youth to make healthy food choices through a new program titled 4-H Food Smart Families that was conducted in after school programs and summer camps. Additionally, the program was designed to encourage youth to share what they learned with their families. Both the teen teachers and the youth were asked to complete a post-program questionnaire that included questions related to food choice knowledge and actions taken by the youth and their families. The teen teacher questionnaire also included items related to positive youth development.

Results

The 4-H Food Smart Families questionnaire was completed by 84 teen teachers. Eight of the items use a pre-post format to identify program outcomes. Using a 4-part scale ranging from 1=strongly disagree to 4=strongly agree, increases in the percentage of teens indicating 'agree' or 'strongly agree' were noted for seven of eight statements in the following order from highest to lowest.

8.4% increase [from 84.5% to 92.9%] 'I have the skills to teach younger youth'.

8.3% increase [from 84.6% to 92.9%] 'I am a role model for younger youth'.

8.3% increase [from 84.5% to 92.8%] 'I have experienced a successful youth-adult partnership'.

7.6% increase [from 81.7% to 89.3%] 'I am good at teaching younger youth'.

6.0% increase [from 86.9% to 92.9%] 'I want to contribute my skills to help others'.

3.5% increase [from 90.5% to 94.0%] 'I feel comfortable teaching younger youth'.

1.2% increase [from 88.1% to 89.3%] 'I want to contribute my skills to help my community'.

The percentage [92.5%] remained the same from pre-test to post-test for 'I want to be a role model for others'.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|-------------------|
| 724 | Healthy Lifestyle |
| 806 | Youth Development |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

4-H Incubation and Embryology Program.

Using materials developed by a University of Illinois poultry specialist in conjunction with state and local 4-H staff, 191 teachers in nine Northeastern Illinois counties responded to a survey asking them to share their perception of the impact of the multi-week **4-H Incubation and Embryology Program**. A reported 7,368 students were enrolled in grades K-2 and 4,793 students were enrolled from grades 3-12. Two surveys were tailored around grade level science skills learning standards for the two grade level groupings [5 science skills for K-2 and 10 for 3-12].

With respect to the science abilities of students in grades K-2, 88 [83%] of the 106 teachers who answered this question indicated a perceived increase in at least one of five [5] science

abilities. More than one-half of the teachers reported perceived increases in their students' observation ability [72% of the teachers], predicting ability [55%], organizing/ordering/classifying ability [51%], and comparing and contrasting ability [48%].

With respect to students in grades 3-12, 48 [91%] of the 53 teachers who answered this question indicated a perceived increase in at least one of the ten [10] science abilities. More than three-fifths of the teachers reported perceived increases in their students' hypothesizing ability [66%], and observation ability [65%]. More than one-half of the teachers reported perceived increases in their students' ability to interpret/analyze/reason [56%], question [56%], collecting data [54%], predict [52%], problem solve [52%], and evaluate [50%]. In addition, nearly one-half of the teachers perceived increases in their students' communication/demonstration ability [46%] and ability to summarize [44%].

Students were asked to hold up their hands in responding to science-related statements. More than 90% of the teachers sharing the information indicated that most of their students liked science and would like to do more activities like this incubation and embryology program in the future.

4-H Science Evaluation Studies

In 2012, a questionnaire seeking to establish a baseline regarding 4-H members attitude/interest in science, their opinion regarding the relevance/value/utility of science, encouragement to engage in science, and aspirations regarding pursuing a career in science or using it to solve everyday problems was distributed to youth at 4-H science group meetings or science-related 4-H events and collected after completion by a 4-H staff member and volunteer during the summer of 2012. The questionnaire included 15 statements regarding science and 4-H. Youth were instructed to rate the statements as 'Strongly disagree', 'Disagree', 'Agree', and 'Strongly agree'. Those coding data for analysis assigned values ranging from 1='Strongly disagree' to 4='Strongly agree'.

This past year, an evaluation containing ten of the same eleven questions and five additional ones were added specific to 20 various 4-H science programs of interest--robotics, Science Siesta, I Think Green, Tech Wizards, and Geographical Information Systems [GIS]. The data collection protocol involved a 4-H staff person distributing paper copies of the questionnaire and collecting completed questionnaires. A total of 1,024 were collected. Preliminary results of an analysis of the responses that includes a comparison to the findings from the 2012 baseline study of a cross-program stratum of 405 youth participants follows.

Attitude/Interest in Science

I like science [86.87% agreed or strongly agreed as compared to the 82.2% baseline study].

I am good at science [84.4% agreed or strongly agreed as compared to the 82.9% baseline study].

I do science-related activities that are not for schoolwork [64.6% agreed or strongly agreed as compared to the 70.7% baseline study].

Relevance/Value/Utility

Science is boring [83.1% disagreed or strongly disagreed as compared to the 87.2% baseline study].

I think science, engineering, or technology will be important in my future job [82.8% agreed or strongly agreed as compared to the 80.6% baseline study].

I can explain to others how I use science, engineering, or technology in my 4-H program/project [69.6% agreed or strongly agreed as compared to the 76.6% baseline study].

Encouragement

I often get to do hands-on activities in my 4-H program/project [84.9% agreed or strongly agreed as compared to the 87.6% baseline study].

I am encouraged to ask questions about science, engineering, or technology [81.1% agreed or strongly agreed as compared to the 79.5% baseline study].

When I graduate from high school, I would like to have a job related to science [60.5% agreed or strongly agreed as compared to the 61.2% baseline study].

Aspiration

Science is useful for solving everyday problems [82.1% agreed or strongly agreed as compared to the 70.5% baseline study].

I want to learn more about science [88.1% agreed or strongly agreed as compared to the 85.3% baseline study].

In response to four additional questions, all of the respondents agreed that they: [1] Have helped with a community service project that relates to science; [2] Used science tools to help in the community; [3] taught others about science; and [4] Organized or led science-related events.

4-H Workforce Preparation Experiences Evaluation Study

Extension 4-H Youth Development staff engaged in a national effort to pilot 'Common Measures' regarding the effectiveness and impact of workforce preparation experiences for youth. A questionnaire that included 14 of these 'Common Measures' was distributed to 12 groups of youth that were participants in various workforce prep programs that included **Welcome to the Real World**, a STEM camp, or an alternative life skills program. The questionnaire included 14 statements regarding career exploration, self-assessment of skills and interests, and educational plans after high school. Youth were instructed to rate the statements as 'Strongly disagree', 'Disagree', 'Agree', or 'Strongly agree'. Those coding data for analysis assigned values ranging from 1='Strongly disagree' to 4='Strongly agree'. A total of 526 youth completed the questionnaire. Results of a preliminary analysis

follow.

As a result of my experience in this 4-H program or project:

I thought about my career decisions [94.7% agreed or strongly agreed].

Someone spent time talking to me about what I want to do in the future [79.0% agreed or strongly agreed].

Someone talked to me about what skills I need to achieve my goals [70.5% agreed or strongly agreed].

I talked to someone who works in a career that interest me [49.5% agreed or strongly agreed].

I have identified my strengths and weaknesses [72.5% agreed or strongly agreed].

I know how my actions and decisions will affect my career choice [95.1% agreed or strongly agreed].

I know where to go to find dependable information about jobs [78.4% agreed or strongly agreed].

I know a college campus I would like to visit [73.4% agreed or strongly agreed].

I can think of ways to use my skills as a business [75.3% agreed or strongly agreed].

I know of careers that are related to my interests [92.8% agreed or strongly agreed].

I plan to go to college or trade school after high school [92.8% agreed or strongly agreed].

I feel more confident in finding a job [85.9% agreed or strongly agreed].

I will make a good employee [97.5% agreed or strongly agreed].

I've learned a skill that I can use in a future job [82.6% agreed or strongly agreed].

In response to a final question, 485 of the 526 respondents shared information about a job they would like to have.

Key Items of Evaluation

4-H Incubation and Embryology Program

After conducting the **4-H Incubation and Embryology** program in their classrooms, more than half of the K-2 and 3-12 teachers perceived observed increases in their students' observation skills. More than half of the K-2 teachers also reported observed increases in their students' hypothesizing, predicting, and organizing/ordering/classifying abilities. In addition, more than half of the grades 3-12 teachers reported observed increases in their student's ability to hypothesize, observe, interpret/analyze/reason, question, collect data,

predict, problem solve, and evaluate.

4-H Science Evaluation Studies

More than half and as many as 88% of the 1,024 4-H science group participants responded favorably to the science related statements. In addition, all percentages were near or slightly below the 2012 baseline with the exception of a larger percentage indicating that science is useful for solving everyday problems and a smaller percentage indicating that they do science-related activities that are not for schoolwork and can explain to others how they use science, engineering, or technology in their 4-H program program/project. Complete findings are still being reviewed but will be available upon request.

4-H Workforce Preparation Experiences Evaluation Study

Approximately one-half and as many as 97.5% of the 526 4-H group participants responded favorably to the workforce preparation-related statements. More than 90% indicated that as a result of their the 4-H workforce preparation experience they: [1] Thought about career decisions; [2] Know how their actions and decisions will affect their career choice; [3] Know of careers that are related to their interests; [4] Plan to go to trade school after high school; and [5] Believe they will make a good employee. Complete findings are still being reviewed but will be available upon request.