

Numbers and Nuggets: Mining the Extension Database to Meet MS4 Educational Requirements



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University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

Overview

- Background – History and Structure
- Data Management and Reporting
- Data Extraction and Utilization

OVER 100 YEARS OF EVIDENCE BASED
EDUCATION



University of Kentucky
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CES Structure - Funding



Federal

Morrill Acts 1862 & 1890: Established Land Grant Colleges
Smith-Lever Act 1914: Established Cooperative Extension Service



Photo credit: kentuckytourism.com

State

Mandated
Salary Support through UK

County/Local

Balance of support
Additional agents



Photo credit: Kentucky Gazetteer, Kentucky.hometownlocator.com

CES Structure - Staff

Agriculture and
Natural Resources

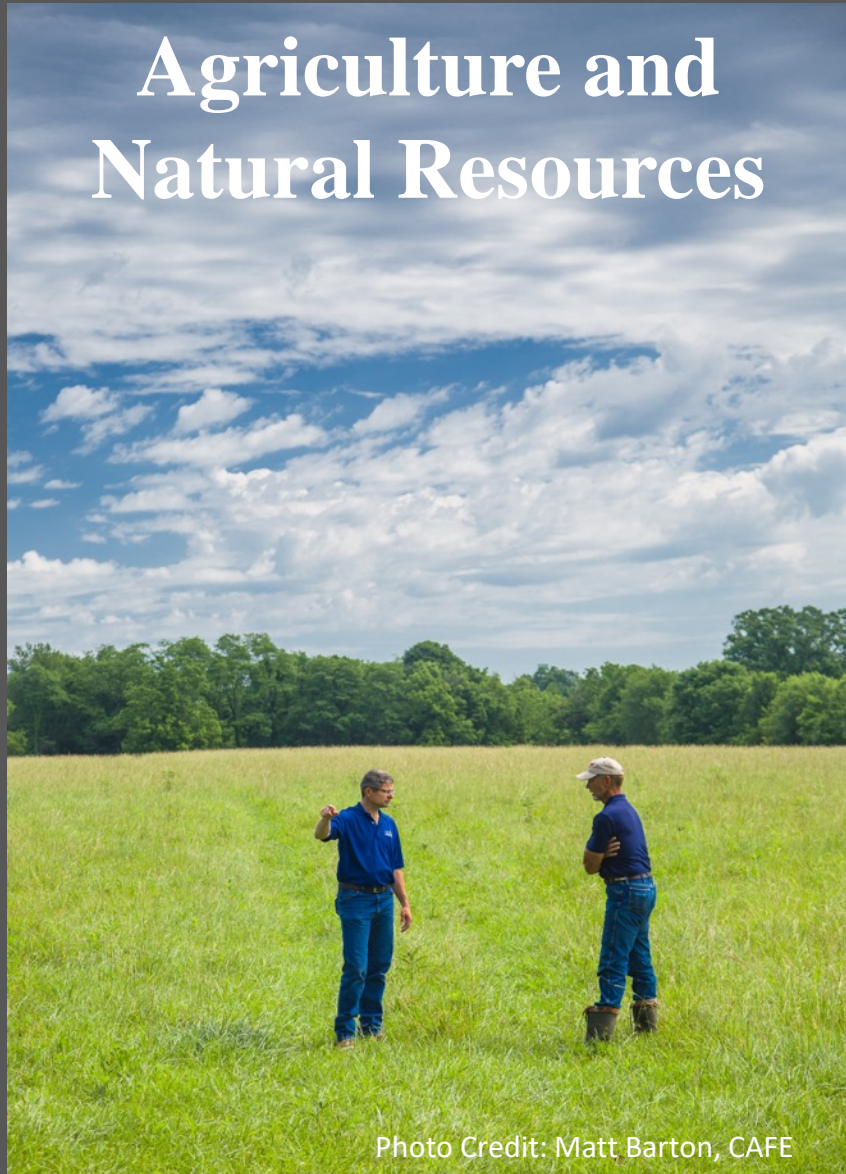


Photo Credit: Matt Barton, CAFE

Agents in
3 Major Program Areas



Kentucky 4-H Foundation



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CES Structure - Strategy

| | FY | Planning Unit | MAP Title | Program Plan |
|--------|------|---------------------|--|--|
| Select | 2019 | Campbell County CES | Agriculture and Natural Resource Awareness | Community Development through Agriculture and Natural Resources Awareness |
| Select | 2019 | Campbell County CES | Home Horticulture - Lakeside Commons Educational Gardens | Home Horticulture - Lakeside Commons Educational Gardens |
| Select | 2019 | Campbell County CES | 4-H Resident Camp | 4-H Resident Camp |
| Select | 2019 | Campbell County CES | FCS - Promoting Healthy Homes and Communities | Promoting Healthy Homes and Communities |
| Select | 2019 | Campbell County CES | FCS - Making Healthy Lifestyle Choices | Making Healthy Lifestyle Choices |
| Select | 2019 | Campbell County CES | Environmental Education Center Classes and Programs | Environmental Education Center Classes and Programs |
| Select | 2019 | Campbell County CES | Home Horticulture - Enabled Gardeners | Home Horticulture - Enabled Gardeners |
| Select | 2019 | Campbell County CES | Commercial Horticulture - Farmers Market | Commercial Horticulture - Farmers Market |
| Select | 2019 | Campbell County CES | 4-H Science | 4-H Science ,Engineering, Technology and 4-H Natural Resource Education |
| Select | 2019 | Campbell County CES | 4-H Communications Skills | Developing Oral and Written Communication Skills |
| Select | 2019 | Campbell County CES | Agriculture Productivity, Profitability and Sustainability | Improving the Productivity, Profitability and Sustainability of Agriculture Operations |
| Select | 2019 | Campbell County CES | 4-H Nutrition and Wellness | Youth Nutrition, Fitness and Healthy Lifestyles |
| Select | 2019 | Campbell County CES | Environmental Education Backyard Streaming | Environmental Education Backyard Streaming |
| Select | 2019 | Campbell County CES | Environmental Education General Public Programs and Assistance | Environmental Education General Public Programs and Assistance |
| Select | 2019 | Campbell County CES | Environmental Education In-School Programs | Environmental Education In-School Programs |
| Select | 2019 | Campbell County CES | Environmental Education Urban Water Quality | Environmental Education Urban Water Quality |
| Select | 2019 | Campbell County CES | Home Horticulture - Children's Garden Program | Home Horticulture - Children's Garden Program |
| Select | 2019 | Campbell County CES | Home Horticulture - Community Gardens | Home Horticulture - Community Gardens |
| Select | 2019 | Campbell County CES | Home Horticulture - Master Gardener | Home Horticulture - Master Gardener |

CES Structure - Strategy

Campbell County CES

Title:

Environmental Education Urban Water Quality

MAP:

Environmental Education Urban Water Quality

Agents Involved:

Scully

MAJOR PROGRAM 1:

Urban Environments (water issues)

Situation:

The population of Kentucky continues to migrate to urban areas thus increasing impervious surface and subsequent runoff and impairments to water quality. EPA has imposed regulations on 104 Municipal Separate Storm Sewer (MS4) permitting communities with populations of 10,000 or more to educate and involve the public in their permit plans.

Long-Term Outcomes:

Reduction of lawn, landscape, and garden additives. Reduce level of pollutants in storm water. Improve level of water quality in stream segments within and adjacent to communities.

Intermediate Outcomes:

Participants will: implement best management practices on their property or in their community, make informed decisions on daily activities and actions that affect water quality, make informed decisions on use of lawn, landscape and garden additives. Complete soil tests and apply plant nutrients accordingly, apply lawn, landscape and garden additives as recommended including: handling, application, disposal, and environmental conditions. Dispose pet waste correctly, direct downspouts to pervious surfaces, advocate for education and community actions to improve water quality, conduct a storm water education and training program, and advocate for storm water best management practices with clients and community leaders.

Initial Outcomes:

Participants will: define watershed, define storm water, define/identify impervious surfaces, and describe one or more aspects of pollutant runoff. Recognize the water quality issues/needs on their property, at their school, in the community, observe or participate in best management practices implementation, understand the benefits of native plants and non-aggressive perennials in the landscape, and learn how to take a soil test.

Evaluation:

Long-Term Outcome: Implementation of recommended environmental best management practices and lessons, reduction in the use of lawn, landscape and garden additives. Improvement in water quality in stream segments and reduction of pollutants in storm water.

Indicator: Responses on evaluations and surveys, number of landscape and lawn care professionals, community volunteers, and homeowner's association members who implement best management practices and lessons, water quality analysis.

Method: Written evaluations and surveys completed by participants after storm water education and training program, personal observations and verbal comments and water quality analysis.

Timeline: Knowledge gained from the training program, activities and publications

Outcomes

Evaluation

Inputs

New Meeting/Activity Record

Activity Date: 05/02/2019

Title:

Description:

Rich text editor with toolbar (undo, redo, bold, italic, underline, bulleted list, numbered list) and text area containing "Your Description Here!"

Major Program:

Urban Environments (water issues) (1003)

Days:

--- select ---

more options (multistate, not present, night event ...)

- Not present?
- Occurred at night?
- Occurred on a weekend?
- Not Extension sponsored?
- Multistate effort?

Race/Ethnicity:

| | Non-Hispanic | Hispanic |
|-----------------------|--------------|----------|
| White: | 0 | 0 |
| Black: | 0 | 0 |
| Asian: | 0 | 0 |
| American Indian: | 0 | 0 |
| Hawaiian: | 0 | 0 |
| Cannot be determined: | 0 | 0 |
| Other: | 0 | 0 |
| TOTALS: | | |

Gender:

Female
0

more options (volunteers, minors ...)

- 0 Number of Adult Volunteers
- 0 Number of Youth Participants (18 and under)
- 0 Number of Indirect Contacts

SNAP Ed eligible?:

- Addressing Water Issues
 - Backyard Streams (1001)
 - Ag Water Quality Program (1002)
 - Urban Environments (water issues) (1003)
- Livestock Production Systems
 - Beef (1011)
 - Dairy (1012)
 - Aquaculture (1013)
 - Swine (1014)
 - Poultry (1015)
 - Small Ruminants (1016)
 - Equine (1017)
 - Bees/Beekeeping (1018)
- Local Food Systems
 - Local Food Systems (1021)
- Home & Consumer Horticulture/Master Gardener
 - Home & Consumer Horticulture (1031)
 - Master Gardener (1032)
- Chemical Management
 - Pesticide Safety – Plant Pests (1041)
 - Chemical Crop Management Tools (1042)
 - Integrated Plant Pest Management (1043)
 - Pesticide Safety – Livestock Pests (1044)
 - Chemical Livestock Management Tools (1045)
- Commercial Horticulture
 - Commercial Horticulture (1051)
 - Commercial Horticulture – Landscape Ecosystems (1052)
 - Commercial Horticulture – Crop Marketing (1053)
 - Farmer's Markets (1054)
- Agriculture Sustainability
 - Sustainable Agriculture (1061)
- Crop Production Systems
 - Grain Crops (1071)
 - Forages (1072)
 - Tobacco (1073)
 - Soils (1074)
- Agricultural Economics
 - Farm Management (1081)
 - Ag Marketing (1082)
 - Ag Policy (1083)
- Biotechnology
 - ANR Biotechnology (1091)
- Data Management & Tech
 - Data Management & Tech (1101)
- Forested Systems
 - Forestry Industry Education (1121)
 - Woodland Education (1126)
 - Forestry and Natural Resource Professional Education (1122)
 - Wildlife Habitat and Damage Management Education (1123)
 - Youth Forestry and Natural Resource Education (1124)
 - Logging Training and Professional Education (1125)

Numbers

Numbers: Raw (tabulated) data

| User ID | User Name | Cnty ID | Cnty Name | Date | Title | Desc. | Major Program ID | Major Program Name | DC | IDC |
|---------|-----------|---------|-----------|---------|------------------------------------|---------------------|------------------|--------------------|-----|-----|
| 173 | xxxx | 36 | Greenup | 2/23/18 | Woods and Wildlife for your Wallet | Landowner education | 118 | Woodland Edu | 250 | 0 |

Steps:

- Identify Agent Representative(s): at least one agent per Phase II MS4 county
- Data Extraction: 2 passes required
- Import to spreadsheet

*For 34 agents = 13,496 lines of data,
2.3 million contacts*

How do they make those contacts?



Workshops and Trainings



Events

Household Hazardous Waste Coalition

- Cooperative Extension
- SD1
- City of Florence
- County Solid Waste Department

Event staffed by Extension personnel, and over 100 volunteers from NKY schools and businesses.

2841 residents from Boone, Campbell and Kenton Counties
Over **300,000** pounds of household hazardous waste



Field Days/Farm Days/Market Days



Contacts

Think twice before applying fertilizer or weed and feed products to your lawn. **Spring nitrogen application on cool season grasses** (like fescue or Kentucky bluegrass) can be detrimental. It promotes weed growth and increases the risk for insect damage. Improperly timed fertilizer application also increases the risk for nutrient pollution in stormwater.

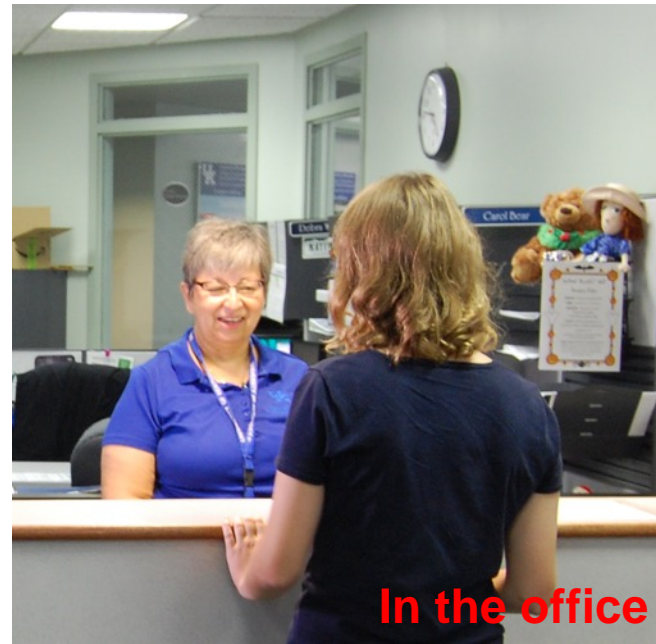
Forgo the Fertilizer

Start spring lawn care on the right foot:

- ✓ Sharpen lawn mower blades
sharp blades are an important part of turf health
- ✓ Set your mower on the right height
remove less than a third of the leaf blade
- ✓ Properly time herbicide application
know when to apply pre- vs post-emergent products

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Social Media/Websites



In the office

Phone Calls
and Hotlines

FREE CALL

888-4 VEG IPM
(888-483-4476)



In the field



On the Air

AGRICULTURE NEWS

Minimize Soil Compaction on the Farm

Soil compaction is a problem that many producers face, but one they often overlook. Paying attention to the problem is important. Once soil compaction can reduce your forage yields and slow forage establishment. That can cost you a lot of money in the long run.

When soil particles are pressed together, it reduces pore space, which damages the soil's structure. You know you can't retain moisture.

Compacted soil increases erosion and nutrient leaching. All these things really affect plant growth and that's why you end up with sparse or bare patches and low overall yields.

Soil compaction results from natural and operational factors. Severe compaction is almost always due to management practices.

ment decisions. Soils higher in clay and low in organic matter have a greater potential for compaction. Focus on building organic matter in the soil to develop a good soil structure while you decrease soil bulk density.

If you can keep a thick stand of forages, you can increase manure distribution.

plant a forage-type radish if you intend to graze the pasture. Many producers plant a forage radish with a mixture of annual ryegrass or cereal rye.

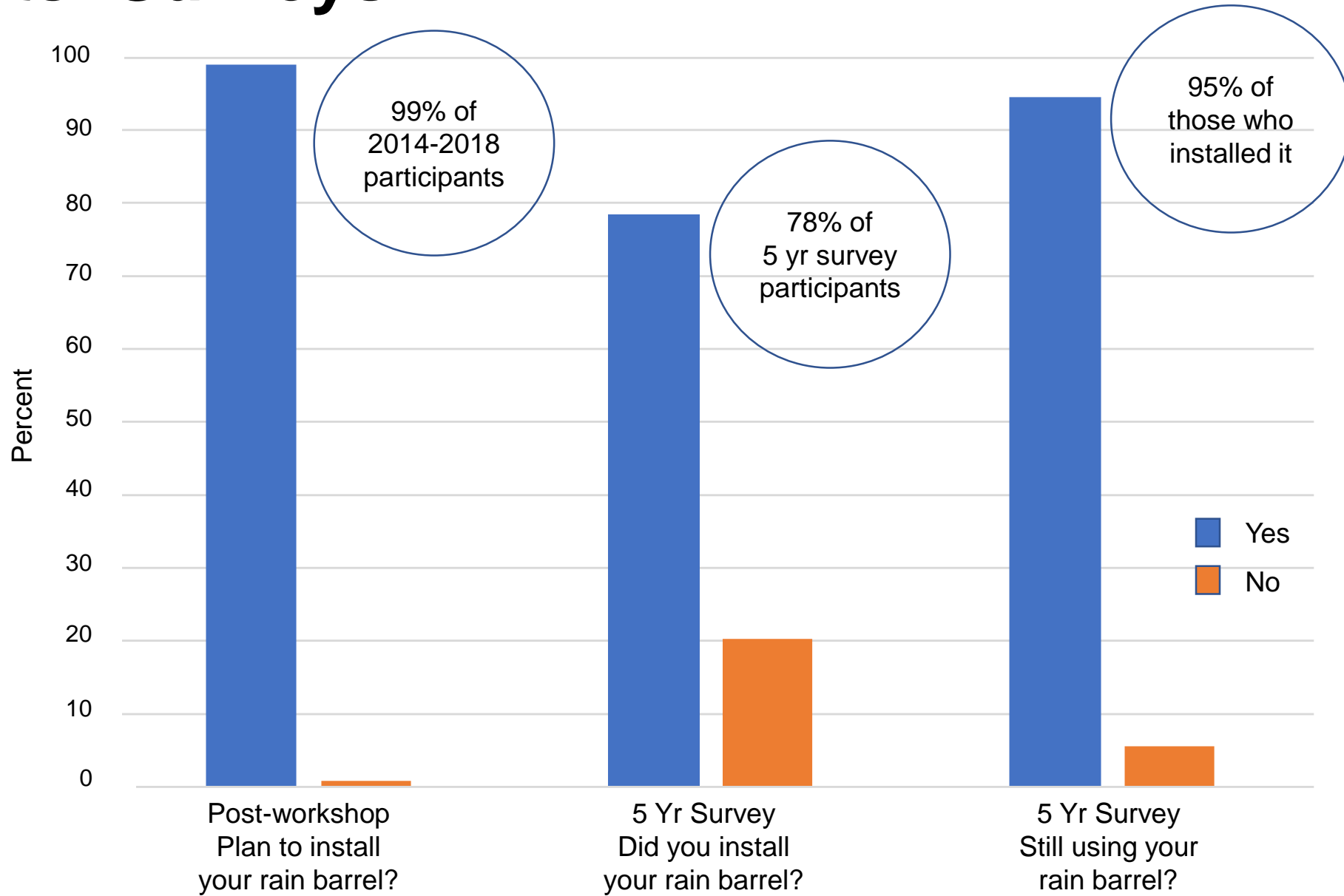
Consider installing high-traffic pads around waterers, feeders and gates. If you regularly move feeding areas, you

"You know what happens when soil can't retain moisture – runoff and poor drainage...Compacted soil...increases erosion and nutrient leaching"

Outputs - Numbers

| | Date/Days | Audience | Title | Description | No. Participants |
|----|--|--|---------------------------------|--|------------------|
| 1 | 1/3/18 | Adult Education: Professional | Water Resources | Environmental Education: Water Awareness month meeting and planning | 6 |
| 2 | 4 Days (1/12, 2/9, 2/23, 4/6) | Youth Education | Forestry/natural resources | Environmental Education forestry and natural resources, train students to teach students | 8 |
| 3 | 4 Days (1/16 - 1/19) | Adult Education: Professional | Forestry/natural resources | NAAEE Affiliate Workshop: environmental educators, forestry and natural resources | 382 |
| 4 | 1/24/18 | Youth Education | Natural resources/water quality | Creek bed study with Geologist at Nature Center | 3 |
| 5 | 5 Days (2/3, 3/15, 5/21-5/22, 8/29) | Adult Education/training: professional | Natural resources | Instructor and volunteer training: environmental education | 27 |
| 6 | 16 Days (3/8, 3/22, 4/2, 4/5, 4/16, 4/18, 4/19, 4/23, 4/30, 5/3, 5/17, 6/26, 7/17, 7/19, 7/21) | Youth Education | Natural resources | School and 4-H Programs: Insects, wildlife, natural sciences, plants , wildlife habitat; ecosystems | 256 |
| 7 | 3/27-3/28 | Adult Education: Professional | Natural resources | Teach and Inservice, Environmental Education, Project Learning Tree | 20 |
| 8 | 53 Days (3/19, 3/26, 4/5, 4/6, 4/10, 4/12, 4/13, 4/17-4/20, 4/23-4/30, 5/1-5/4, 5/9-5/10, 5/17-5/18; 9/4-9/6, 9/11-9/13, 9/18-9/20, 9/25-9/27, 10/23-10/26, 10/29-10/30, 11/1-11/2, 11/6-11/7) | Youth Education | Forestry/water quality | Environmental Camps: Forest and aquatic systems, impact on wildlife and watershed quality | 4369 |
| 9 | 5 Days (3/12, 5/15, 6/5, 8/23, 9/21) | Adult Education: Homeowners | Natural resources | Nature hikes, tours: woodland education, tree and plant ID, ecosystems, conservation, native seeds and plants | 108 |
| 10 | 4/4, 6/5 | Adult Education: Homeowners | Natural resources/water quality | Site visit: meet homeowners, sinkholes, pond management | 5 |
| 11 | 4 Days (4/24, 5/19, 8/15, 10/18) | Youth Education | Forestry/natural resources | Nature hikes, scavenger hunts, tours: Tree ID, water awareness scavenger hunt, woodlands, ecosystems | 53 |
| 12 | 5/11, 7/13 | Adult Education: Professional | Natural resources/water quality | Meeting and planning: water and environmental programs | 26 |
| 13 | 5/15/18 | Adult Education: Professional | Natural resources/water quality | Boone County Watersheds program - planning, water awareness month | 11 |
| 14 | 5/23/18 | Adult Education: Homeowners | Natural resources/water quality | Pond Ecology Program - water awareness | 9 |
| 15 | 5/30/18 | Adult Education: Professional | Natural resources/water quality | SD1 Campus tour | 6 |
| 16 | 6/2/18 | Adult Education: Homeowners | Natural resources/water quality | Explore Gunpowder Creek - water resources/water quality/aquatic habitats | 31 |
| 17 | 5 Days (6/11-6/15) | Youth Education | Natural resources | 4-H Camp: natural resources curriculum (natural resource identification and conservation, ecosystems, stewardship) | 1825 |
| 18 | 8/20/18 | Adult Education: Homeowners | Forestry/natural resources | Woodland education and management: Native grass class | 10 |
| | | | | Total 2018 Participants | 7155 |

Nuggets: Surveys



Nuggets: Success Stories

COOPERATIVE EXTENSION



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EXTENDING KNOWLEDGE
Changing Lives

When you support Extension, an increasing number of residents dispose or recycle hazardous waste properly in order to prevent contamination, reduce volume in landfills and protect water quality.

Contact:

Campbell County Cooperative
Extension
3500 Alexandria Pike
Highland Heights, KY 41076-1705
(859) 572-2600

<http://campbell.ca.uky.edu/>



extension.ca.uky.edu



Over 2,600 northern Kentucky residents properly disposed of household hazardous waste. Forty-eight percent of waste was electronics.

Extension Enables Northern Kentucky Residents to Dispose of Household Hazardous Waste Safely

Extension professionals serve on the Northern Kentucky Solid Waste Management Area's Household Hazardous Waste Coalition. Extension's promotion of the proper disposal resulted in a 31% increase in participation.

The average household produces 20 pounds of hazardous waste annually. This includes paints, cleaners, oils, batteries, and pesticides, which can catch fire, react or explode if not disposed of correctly.

Environmental Protection Agency

The Environmental Protection Agency (EPA) considers some leftover household products that can catch fire, react, or explode under certain circumstances, or that are corrosive or toxic as household hazardous waste. Products, such as paints, cleaners, oils, batteries, and pesticides can contain hazardous ingredients and require special care when you dispose of them. According to the EPA, the average household generates more than 20 pounds of household hazardous waste per year. The EPA has delegated the oversight of hazardous waste in Kentucky to the Division of Waste Management. The Division provides grants for community household hazardous waste collection events to ensure that certain control and safety measures are enforced.

Extension professionals serve on the Northern Kentucky Solid Waste Management Area's Household Hazardous Waste Coalition with county Solid Waste Departments, District Sanitation, and the City of Florence. The coalition received an \$82,955 grant from the Division in 2016 to conduct a Household Hazardous Waste Collection Event on Nov. 5, 2016 at the University of Cincinnati Health Stadium in Florence, Kentucky. In addition, Toyota donated \$5,000 and the Campbell County Extension District Board contributed \$5,000 to help increase Campbell County participation.

Campbell County residents and the farming community identified the need for oil and hydraulic fluid disposal options at Agriculture Council meetings during 2016. Forty-four thousand residences were notified about the event through *What's Happening in Campbell County*. An Extension news article, promoting the event, was published in the Campbell County Recorder, with a circulation of 17,000.

Members of the Household Hazardous Waste Coalition, Extension staff, and over



Over 1,600 pound of paint was collected, a 300% increase in disposal of paint from the previous year.

100 volunteers from Northern Kentucky schools and businesses worked at the event. Participants received educational information about household hazardous waste as they registered. Over 2,600 residents of Boone, Campbell and Kenton counties participated. Disposal and recycling vendors reported collecting:

- 120,785 pounds of paint
- 6,094 pounds of bulk fuel
- 1,825 gallons of oil (17% increase from previous year)
- 6,394 pounds of pesticides
- 3,659 pounds of household cleaners
- 347 car batteries (11,255 pounds)
- 2,869 pound of dry cell, NiCd, and Lithium batteries
- 56 pounds of mercury
- 1,835 pounds of corrosives

Campbell County participation rose by 31%, from 290 people in 2015 to 380 people in 2016. Forty-eight percent of participants disposed of oil or hydraulic fluid, an increase of 16% from the previous year. Seventy-five percent of people dropped off paint, and 48% disposed of electronics.

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, or physical or mental disability.

Nuggets: Existing Network

Kentucky Pollinator Protection Plan:

Extension Specialists
Kentucky State Apiarist
State and Federal Agencies
Agricultural Associations
Non-profit Organizations
Gardening Groups



If we are not tapping into this resource,

Is this MEP?

Some suggestions from the field...

Share programming ideas

Share success stories

Share event calendar

Tag social media posts

Share flyers or event information

Time for Dialogue

