



Water Management Working Group Recommendations

Information-Sheet Overview

Kentucky Farm Bureau
February 17, 2016

Kentucky Farm Bureau Water Management Working Group Recommendations for fiscal years 2016-2018



Water Management Working Group

The Water Management Working Group, a 20-member task force assembled by Kentucky Farm Bureau, is charged to develop recommendations that will enhance the quality and quantity of water resources accessible for agricultural production in the state. Its mission is to research the emerging critical issue of inadequate water supplies available for agricultural production, examine potential actions to solve this deficiency and make recommendations for bringing new and reliable water sources to key areas of farm production in Kentucky.



Basic summary of water-budget / water-quality based recommendations with detailed annual cost tables by category.

***Water budgets are computed as follows:**

*Precipitation =
Evapotranspiration +
Streamflow +/-
Groundwater Storage +/-
Changes in Soil Moisture +/-
Reservoir Storage +/-
Diversions (sewage and so forth).*

& Water Quality

Ground water

GW_{In}

GW_{Out}

PPT

Evap

SW_{Out}

Operations and overhead



KENTUCKY WATER MANAGEMENT OVERSIGHT COMMISSION OPERATIONS – YEAR 1

OPERATIONS	\$250,000
FUNDING FOR UPDATING AND ADDING AGRICULTURE CONCERNS WITH KENTUCKY DROUGHT MITIGATION PLAN	\$35,000
YEAR 1 TOTAL	\$285,000

Operations – Year 2

OPERATIONS	\$250,000
YEAR 2 TOTAL	\$250,000

SUMMARY

TOTAL 2-YEAR COSTS	\$535,000
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Water Quality



WATER QUALITY – YEAR 1 US GEOLOGICAL SURVEY

INSTALLATION, EQUIPMENT, AND OPERATION COSTS – KENTUCKY RIVER	\$168,500
INSTALLATION, EQUIPMENT, AND OPERATION COSTS – SALT RIVER	\$168,500
YEAR 1 TOTAL	\$337,000

Water Quality – Year 2

OPERATION AND MAINTENANCE - KENTUCKY RIVER	\$77,000
OPERATION AND MAINTENANCE - SALT RIVER	\$77,000
YEAR 2 TOTAL	\$154,000

Water Quality – Year 3

OPERATION AND MAINTENANCE - KENTUCKY RIVER	\$67,000
OPERATION AND MAINTENANCE - SALT RIVER	\$67,000
CONTINUED OPERATION AND MAINTENANCE - OHIO RIVER (FLOWING INTO KENTUCKY)	\$67,000
CONTINUED OPERATION AND MAINTENANCE - GREEN RIVER	\$67,000
YEAR 3 TOTAL	\$268,000

SUMMARY

TOTAL 3-YEAR COSTS	\$759,000
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Estimate does not include HAB sensors
(\$4K install, \$14K annual O&M)

Groundwater quantity



GROUNDWATER - YEAR 1 KENTUCKY GEOLOGICAL SURVEY

UPGRADE 15 EXISTING WELLS WITH REAL-TIME SATELLITE TELEMETRY	\$57,000
OPERATION AND MAINTENANCE (15 WELLS)	\$40,000
YEAR 1 TOTAL	\$97,000

Groundwater - Year 2

DRILL 10 NEW OBSERVATION WELLS IN CRITICAL AREAS	\$118,000
OPERATION AND MAINTENANCE (25 WELLS)	\$66,000
YEAR 2 TOTAL	\$184,000

Groundwater - Year 3

EQUIPMENT REPLACEMENT CONTINGENCY	\$14,000
OPERATION AND MAINTENANCE (25 WELLS)	\$71,000
YEAR 3 TOTAL	\$85,000

SUMMARY

TOTAL 3-YEAR COSTS	\$366,000
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Precipitation, soil moisture, general climate



MESONET (SOIL MOISTURE AND CLIMATE) – YEAR 1 WESTERN KENTUCKY UNIVERSITY, KENTUCKY CLIMATE CENTER

OPERATION AND MAINTENANCE - KENTUCKY MESONET	\$750,000
YEAR 1 TOTAL	\$750,000

Mesonet (Soil Moisture and Climate) – Year 2

OPERATION AND MAINTENANCE - KENTUCKY MESONET (2.5% INFLATION)	\$768,750
ACQUISITION AND INSTALLATION OF SOIL MOISTURE PROBES	\$45,000
EXPAND CAPACITY OF THE KENTUCKY MESONET SCIENTIFIC INSTRUMENT CALIBRATION FACILITY	\$100,000
INSTALL 12 NEW BASIC MESONET STATIONS (EXCLUDING SOIL PROBES) WITH A COST ESTIMATE OF \$20,750 PER STATION, INCLUDING EQUIPMENT, MATERIAL, AND INSTALLATION COSTS.	\$249,000
YEAR 2 TOTAL	\$1,162,750

Mesonet (Soil Moisture and Climate) – Year 3

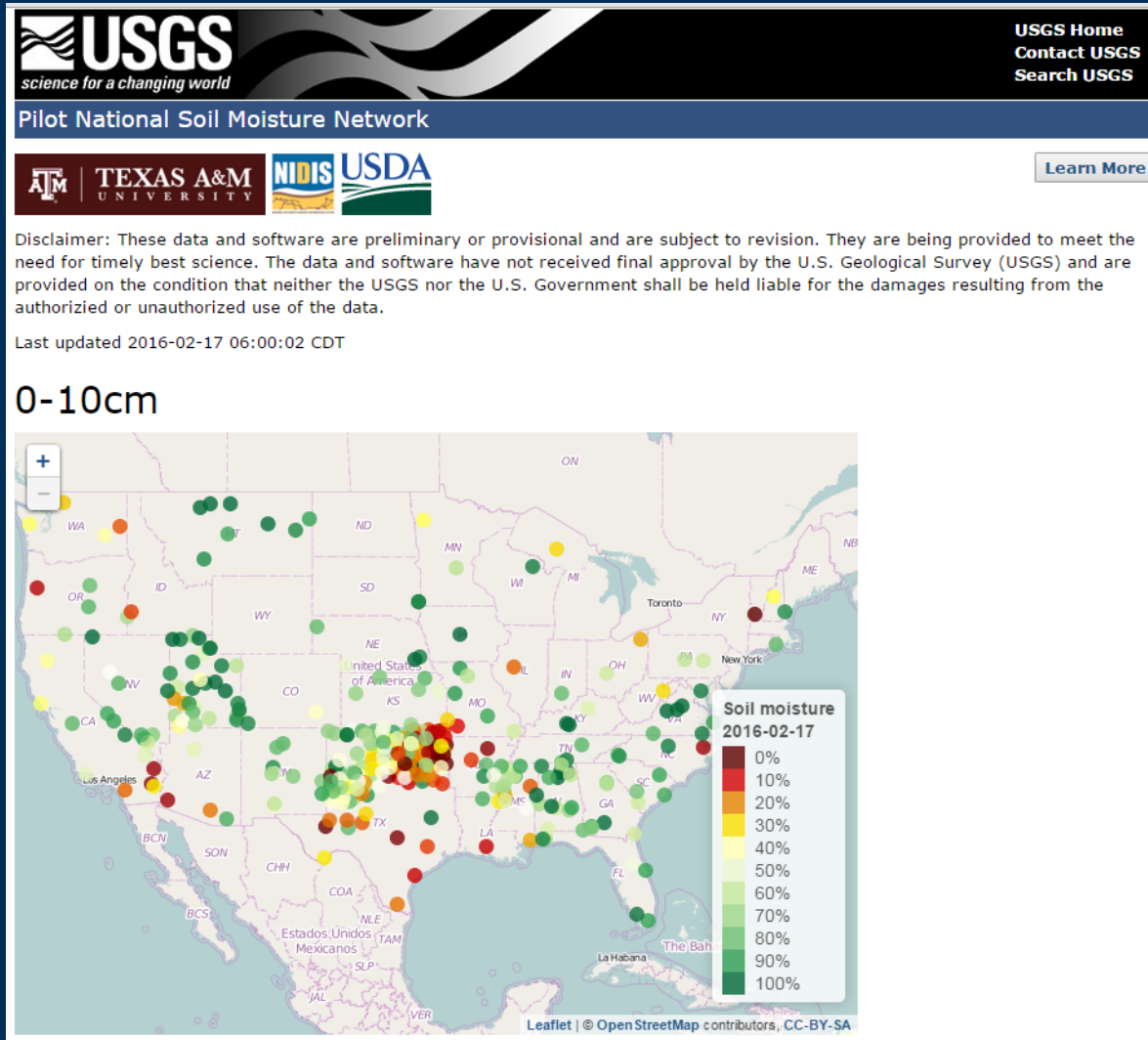
OPERATION AND MAINTENANCE - KENTUCKY MESONET (2.5% INFLATION)	\$788,000
ACQUISITION AND INSTALLATION OF SOIL MOISTURE PROBES	\$45,000
EXPAND THE SUITE OF INSTRUMENTATION AT 40 MESONET STATIONS	\$200,000
YEAR 3 TOTAL	\$1,033,000

SUMMARY

TOTAL 3-YEAR COSTS	\$2,945,750
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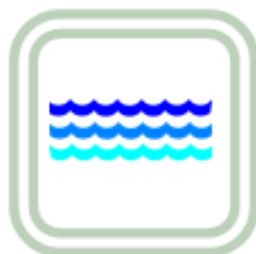


Precipitation, soil moisture, general climate



http://cida.usgs.gov/nsmn_pilot/

Surface-water quantity



SURFACE WATER (STREAMFLOW) – YEAR 1 US GEOLOGICAL SURVEY

INSTALLATION, EQUIPMENT, AND OPERATION COSTS	\$26,000 each
5 GAGES PROPOSED TOTAL WITHIN 22 KENTUCKY COUNTIES	
ALLEN, BALLARD, BRECKINRIDGE, BUTLER, CALDWELL, CARLISLE, DAVIESS, FULTON,	
GRAVES, GREEN, HANCOCK, HOPKINS, LIVINGSTON, LOGAN, LYON, MARION,	
MARSHALL, METCALFE, MONROE, OHIO, TODD, WEBSTER	
YEAR 1 TOTAL	\$130,000

Surface Water – Year 2

OPERATION AND MAINTENANCE	\$14,000 each
5 GAGES TOTAL WITHIN 22 KENTUCKY COUNTIES	
YEAR 2 TOTAL	\$70,000

Surface Water – Year 3

OPERATION AND MAINTENANCE	\$14,500 each
5 GAGES TOTAL WITHIN 22 KENTUCKY COUNTIES	
YEAR 3 TOTAL	\$72,500

SUMMARY

TOTAL 3-YEAR COSTS	\$272,500
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Data management and integration



DATA MANAGEMENT AND INTEGRATION – YEAR 1 US GEOLOGICAL SURVEY

CREATION OF A SMART-DEVICE COMPATIBLE PAGE TO INTEGRATE DATA	\$40,000
YEAR 1 TOTAL	\$40,000

Data Management and Integration – Year 2

OPERATION AND MAINTENANCE	\$3,000
YEAR 2 TOTAL	\$3,000

Data Management and Integration – Year 3


OPERATION AND MAINTENANCE	\$3,000
YEAR 3 TOTAL	\$3,000

SUMMARY

TOTAL 3-YEAR COSTS	\$46,000
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Web-based application scalable for use on a smart phone (D3)

Budget Summary

	BUDGET SUMMARY	
	YEAR 1 TOTAL	\$1,639,000
	YEAR 2 TOTAL	\$1,823,750
	YEAR 3 TOTAL	\$1,461,500
	TOTAL 3-YEAR COST	\$4,924,250
	TOTAL COST PER YEAR IF SPLIT OVER 2-YEAR BIENIUM BUDGET	\$2,462,125



Questions?

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