

Kentucky Nutrient Management

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Kentucky Water at a Glance



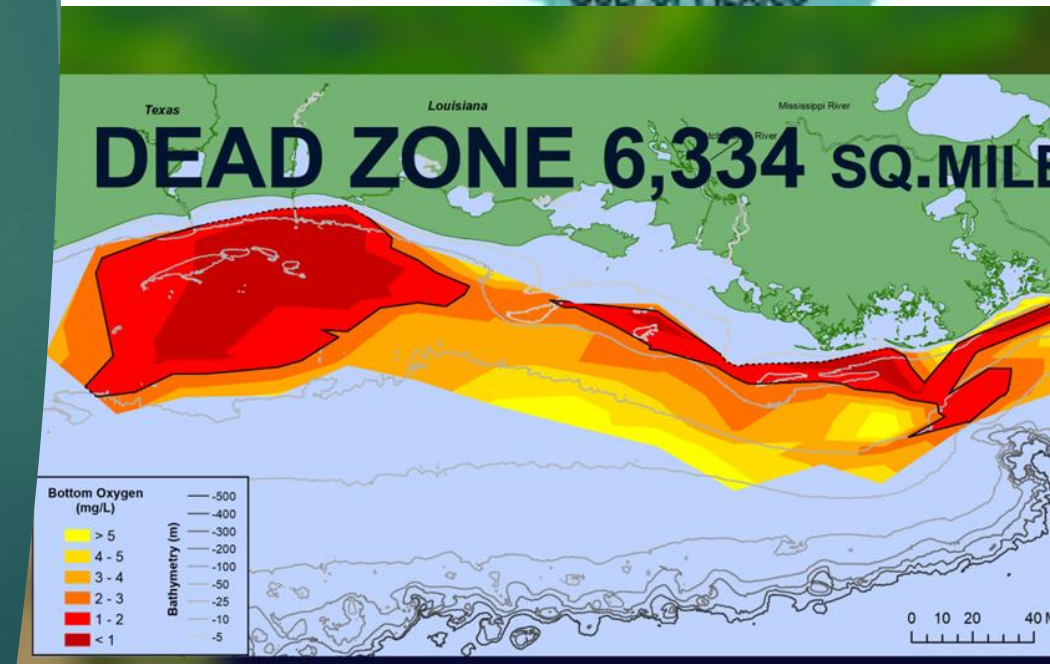
- Average of 55 inches of rain per year
- More than 90,000 miles of rivers and waterways
- Drain to Ohio, Mississippi and Tennessee Rivers
- KARST topography
- Nearly 60% of Kentucky's waterways are impaired

Kentucky is a Diverse AGRICULTURE STATE

GULF HYPOXIA ZONE: Facts

- 41% of the United States drains to the Mississippi. And then empties in the Gulf of Mexico
- Nutrient overload
- Oxygen Depletion Occurs
- Aquatic animals die or flee
- Area can increase or decrease each year







WHY

- Cleaner water
- Reduce treatment cost
- Fishing industry
- Recreational impact
- Landowner responsibility

EPA Mississippi River – Gulf Hypoxia Taskforce

- Established in 2001
- 5 federal agencies
- 11 states
- Goal – reduce nutrient and sedimentation
- Restore and protect the waters of 31 states

Mississippi River Gulf of Mexico Hypoxia Task Force



Kentucky's Nutrient Reduction Strategy

- ✓ Strengthen PARTNERSHIPS
- ✓ Reduce nutrients by %
- ✓ Address agriculture impact
- ✓ Install Best Management Practices
- ✓ Developing nutrient management plans
- ✓ Education



Kentucky Nutrient Management Grant

US EPA Section 319 Grant Funds

Multi-Agency

5 Year Funding

$130,000

Best Management Practices

Target Watersheds

Division of Conservation



PROMOTE AG WATER QUALITY PLANS



LANDOWNER EDUCATION



KY NUTRIENT MANAGEMENT PLANS



WATERSHED AWARENESS



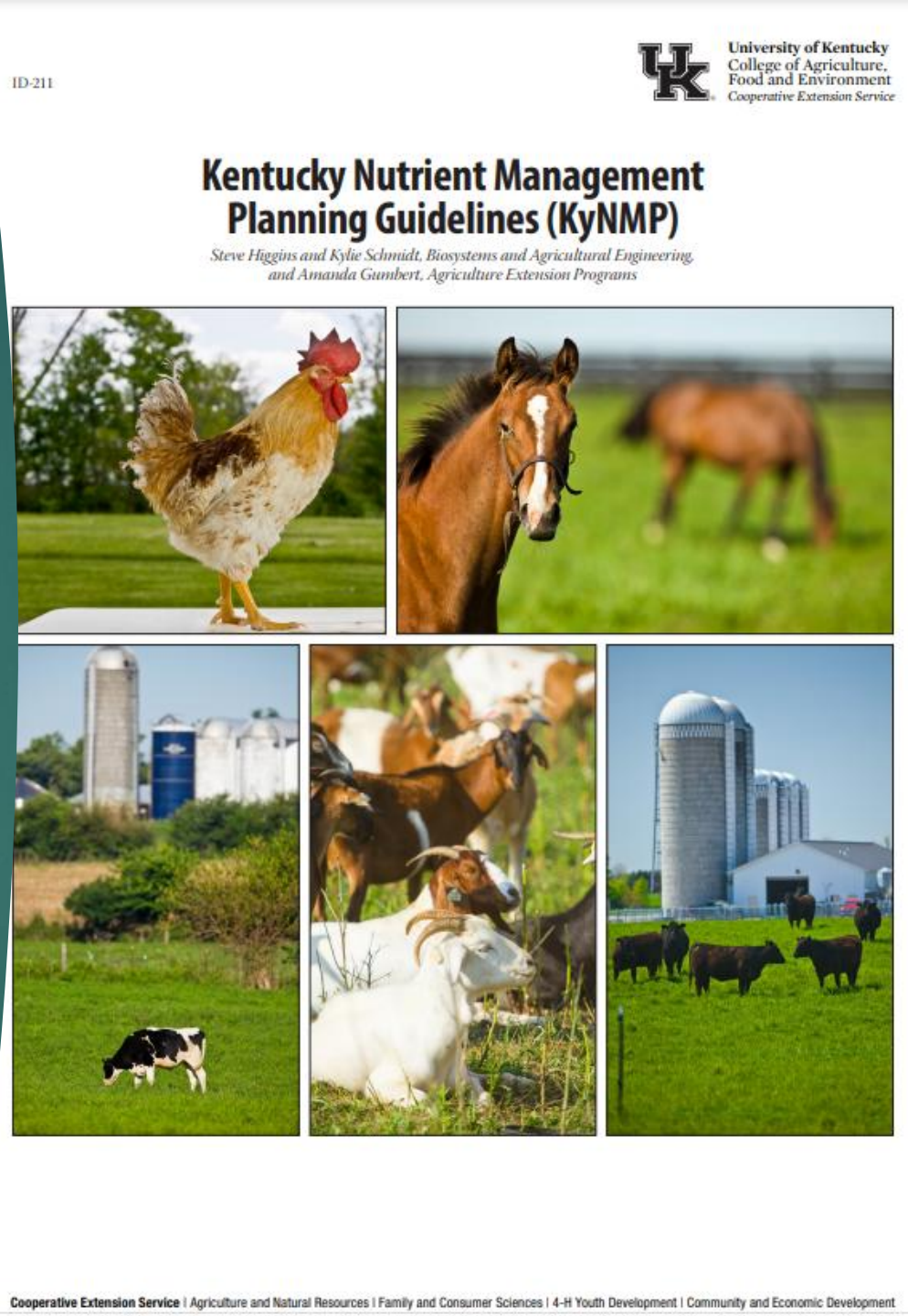
REDUCE AGRICULTURE IMPACT



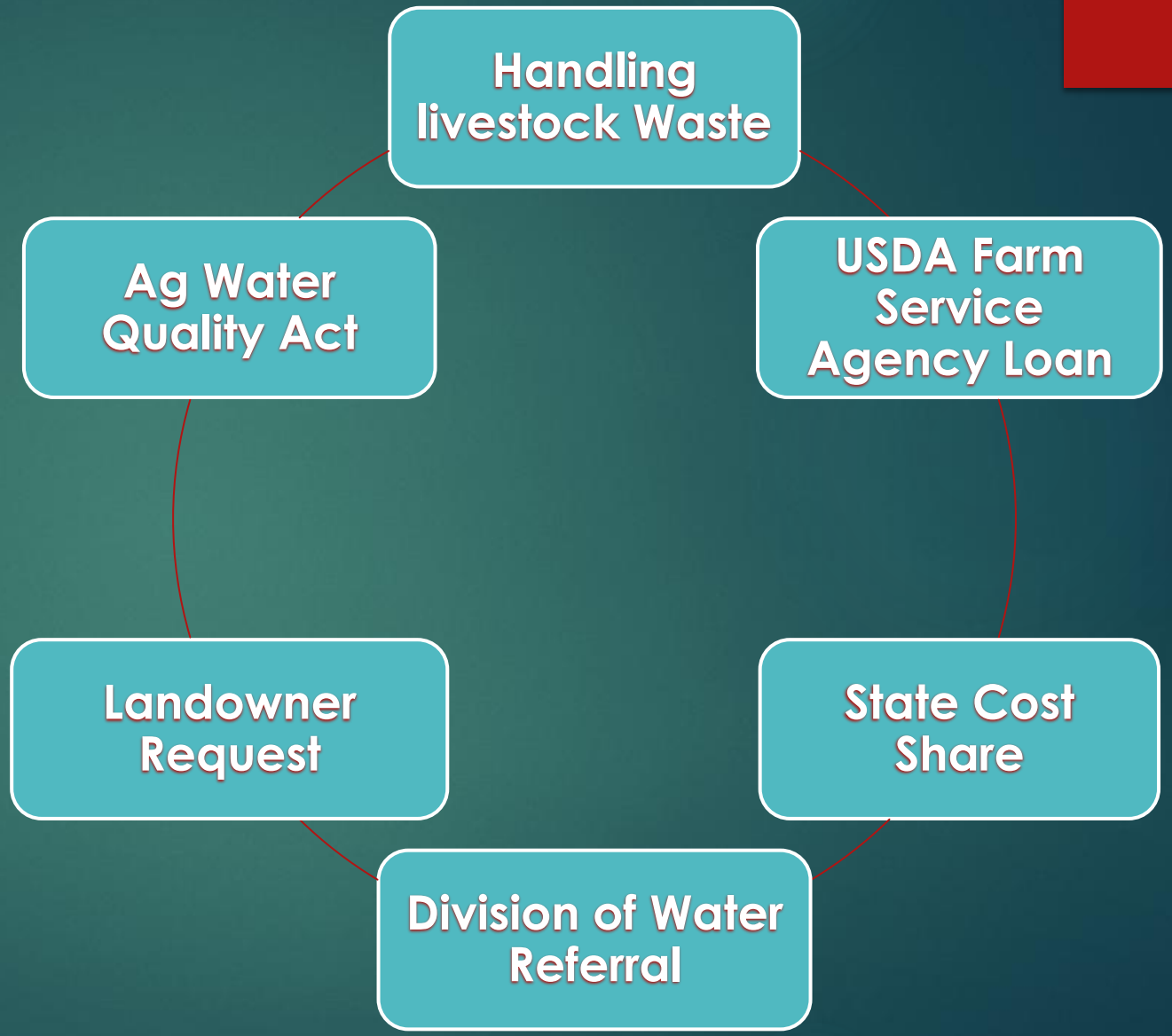
COST SHARE ASSISTANCE

What is a Ky Nutrient Management Plan? (KYNMP)

- Educational tool
- Landowner plan
- Assessment for livestock production of nutrients
- Crop recommendations
- Plan for draw down of nutrients



Why a landowner needs a KYNMP



Process

- Referral through Division of Conservation
- 7 field staff
- Farm visit or consultation
- Gather information
- Utilize planning tool to get information
- Review with landowner
- Referral to Cooperative Extension Service

Required Information



LANDOWNER INFORMATION

- General Info
- Operation information – livestock type, feed rations, lagoons, buildings, confinement, etc.

DISTRICT OR NRCS ASSISTANCE

- Cost share assistance
- Update Agriculture Water Quality Plan
- Water citation letter & pictures
- Aerial maps

SOLIDS WORKSHEET 1 - ESTIMATING NUTRIENTS GENERATED PER CONFINEMENT PERIOD

1. Nutrients Generated (As Excreted)

Animal Type (Table 1)	Number of Animals		Percent Waste as Solid [a]		Average Weight (lbs.)	/	1000	x	Confinement Period[b]	=	Animal Unit Days				N	P_2O_5	K_2O
Beef Cattle-Mature (Confined)	55	x	70%	x	1,200.0	/	1000	x	45	=	2,079	x	N	0.35	=	728	
													P_2O_5	0.18	=		374	
													K_2O	0.29	=			603
		x		x		/	1000	x		=	0	x	N		=			
													P_2O_5		=			
		x		x		/	1000	x		=	0	x	K_2O		=			
													N		=			
													P_2O_5		=			
		x		x		/	1000	x		=	0	x	K_2O		=			
														Step 1 Total	=	728	374	603
																	(lbs.)	

2. Manure Generated (As Excreted)

Animal Unit Days	x	Manure/A.U.	=	Volume of Manure (cu.ft.)
2,079	x	1.46	=	3,035
	x		=	
	x		=	

Step 2 Total = 3,035 cu.ft.

Override Volume of Manure for Step 2

	cu.ft.
	cu.ft.
	cu.ft.

3. Total Tons

Step 2	/	Conversion Factor	=	Total Tons
3,035	/	33	=	92
	/		=	
	/		=	

Step 3 Total = 92 tons

4. Weighted Nutrient Values Before Nutrient Losses

	N	P_2O_5	K_2O
Step 4 Total =	7.9	4.1	6.6
		(lbs./ton)	

Worksheet 2 (Solids)

Go to Workshe

[a] The percent of the manure that is handled as a solid.

[b] Confinement period should be adjusted for animals that are only in confinement for a portion of the day. For example if animals spend 16 hours on pasture and 8 hours in

Go to Worksheet 3 Solids

SOLIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres

Soil Test P Value (Mehlich 3)

	N	P_2O_5	K_2O
1 . **Crop or Crop Sequence/Rotation**			
2 . **Realistic Yield (Average from 5-10 Years on a per acre basis)**			
3 . **Plant Nutrients Needed or Allowed** (lbs/ac)			
4 . **Adjusted P_2O_5 Application Rate According to Threshold**			
5 . **Fertilizer Credits** (lbs/ac)			
6 . **Plant Nutrients Needed Minus Credits** (lbs/ac)	#VALUE!	#VALUE!	#VALUE!
7 . **Nutrients in Manure** (lbs/ton) Enter lab results in box on right to override Worksheet 1 values	7.9	4.1	6.6
8 . **Percent Nutrients Retained in System** Table 1 Enter Table 1 values **or** Enter zero if lab results are used in Step 7			
9 . **Net Retained Nutrients in Manure** (lbs./ton)	0.0	0.0	0.0
10 . **Percent of Available Nutrients** Table 2 Enter Table 2 value for N		80%	90%
11 . **Net Available Nutrients** (lbs./ton)	0.0	0.0	0.0
12 . **Application Rate** (tons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	#VALUE!	#VALUE!	#VALUE!
13 . **Net Application Amount for All Nutrients** (lbs/ac)	#VALUE!	#VALUE!	#VALUE!
14 . **Nutrient Needs (-) or Surpluses (+)** (lbs/ac)	#VALUE!	#VALUE!	#VALUE!

Tons Available 92 - **Tons Applied in Field** _____ **= Balance** **#VALUE!**

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
N	**P205**	**K20**

Chosen Application Rate MUST ENTER

Go to Worksheet 3 Solids

Landowner Education

- Nutrient management concepts
- Soil and manure samples
- Composting
- Mortality disposal
- Agriculture water quality
- Manure application
- Nutrient management plan summary and recommendations



Manure = Liquid Gold





Pros

- Education
- One on one interaction
- Assist other agencies
- Completed over 100 plans
- Assisted 135 landowners

Cons

- Manpower
- Compliance
- Improving tools
- Landowner hesitancy
- Ongoing monumental task
- DOW mandates

End Goal





- Improve Water Quality
- Educate Landowners
- Reduce Kentucky's Contribution
- MAKE A DIFFERENCE










Thank
you!