

# On-Farm Conservation and Nutrient Management in Maryland: A 2010 Snapshot

Erik Lichtenberg

Department of Agricultural and Resource Economics

University of Maryland

College Park, MD 20742-5535

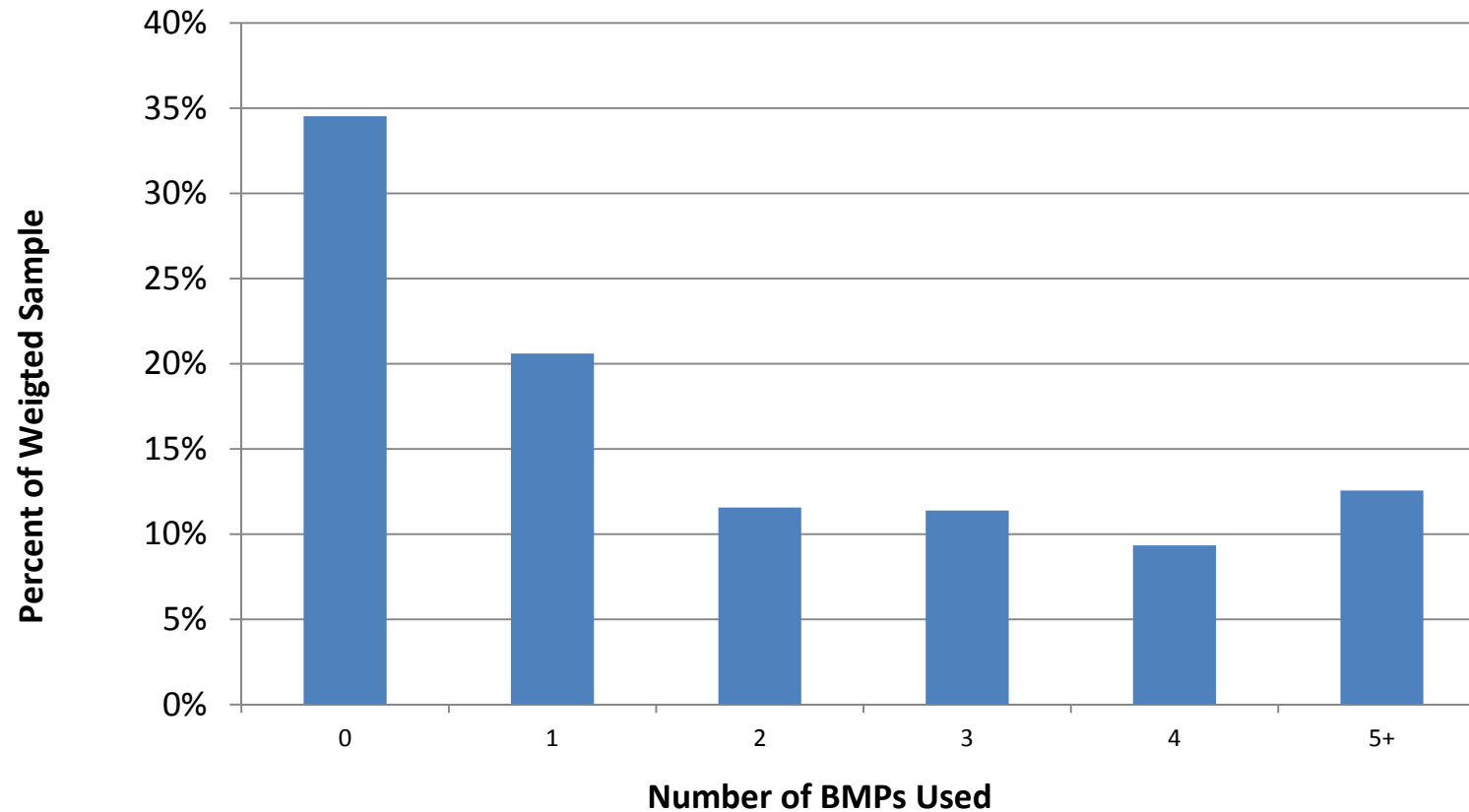
# The 2010 UMD BMP Survey

- Mail survey asking about best management practice use, cost sharing, and nutrient management planning.
- Sent to 1,000 Maryland farm operations with telephone follow-up conducted by Maryland Agricultural Statistics Service.
- Stratified random sample.
- 523 responses.
- Weights based on farm sales used to create a sample that reflects commercial farming in the state.

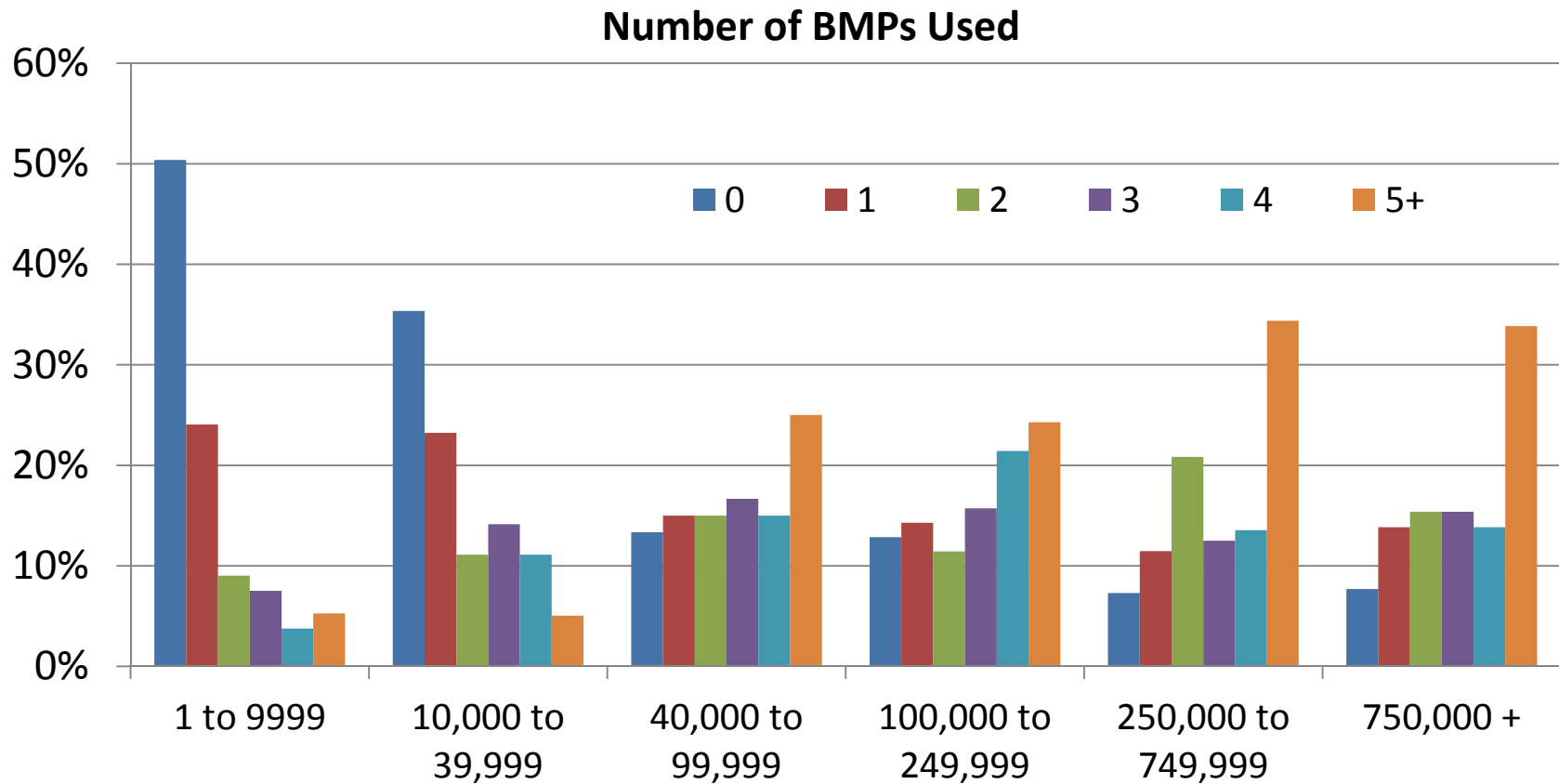
# Best Management Practices (BMPs) Included in the Survey

- Vegetative Cover
- Water Conveyance and Storage
- Cover Crops
- Conservation Tillage/No-till
- Contour Farming
- Strip Cropping
- Retirement of Highly Erodible Land
- Riparian Buffers (Forest and Grass)
- Wetland Restoration
- Stream Fencing, Stream Crossing, Water Trough
- Poultry Manure or Livestock Waste Storage Structure or Lagoon
- Heavy Use Poultry Area Concrete Pad

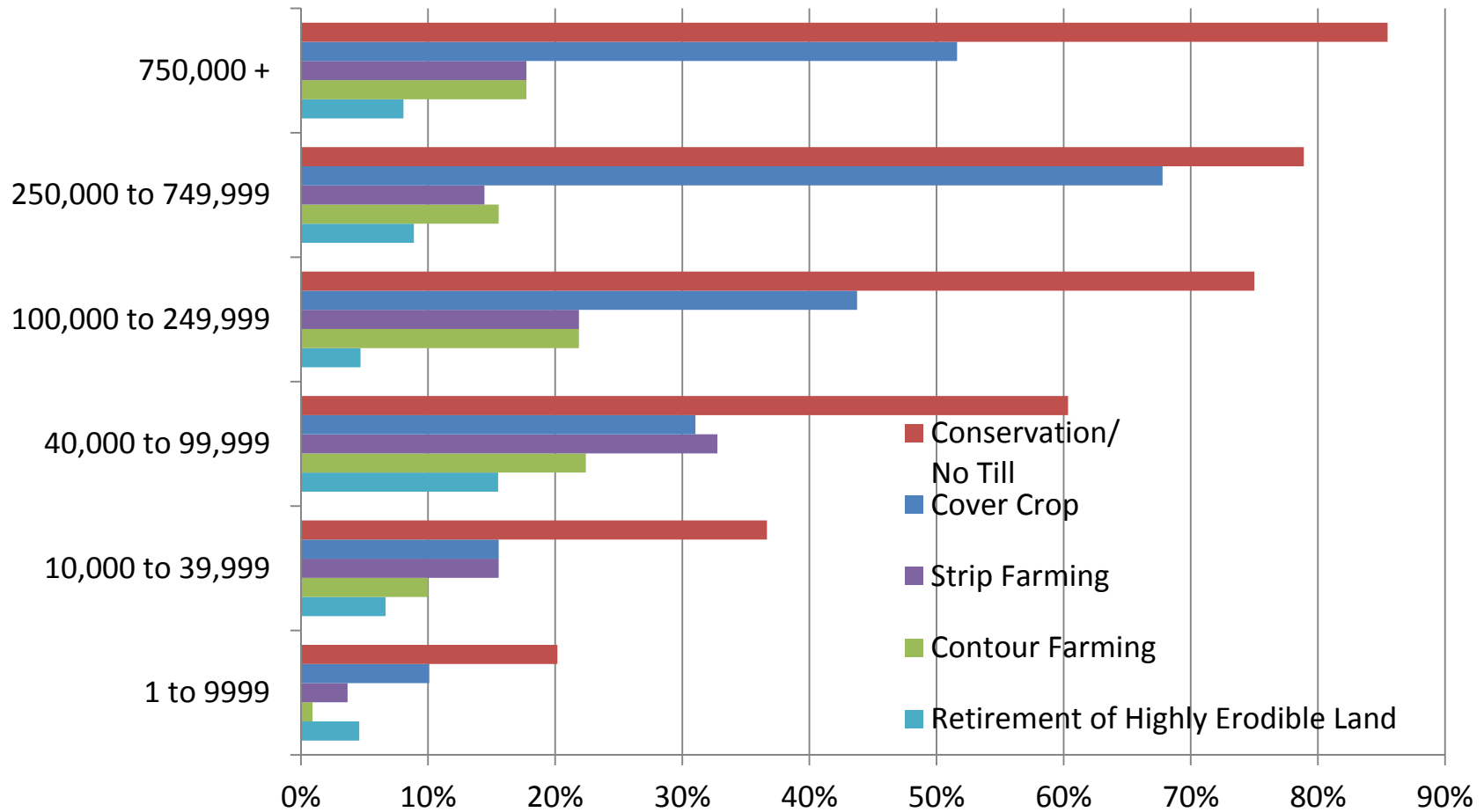
# Most Maryland farmers use at least one BMP



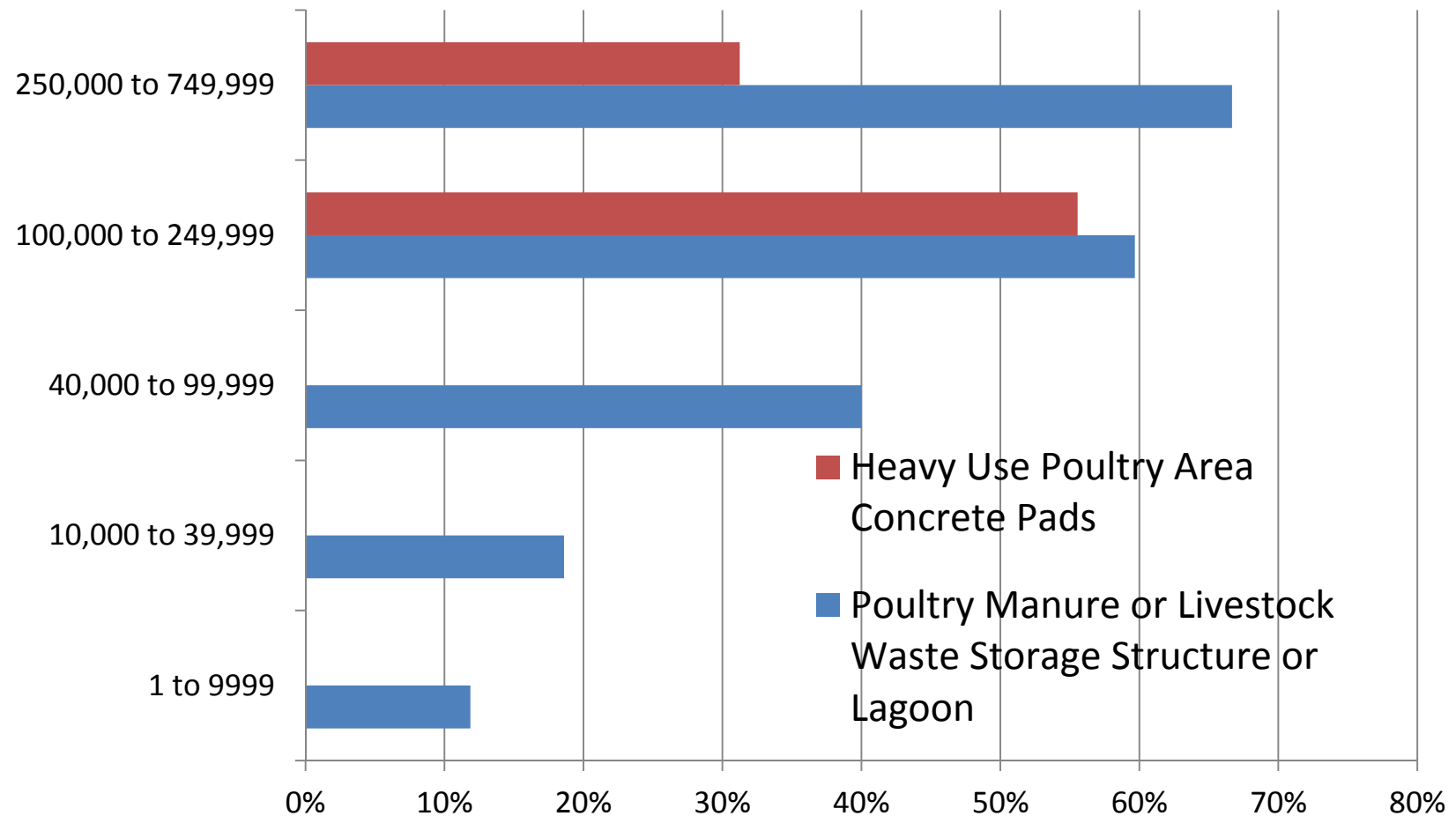
# Large operations use more BMPs than small ones



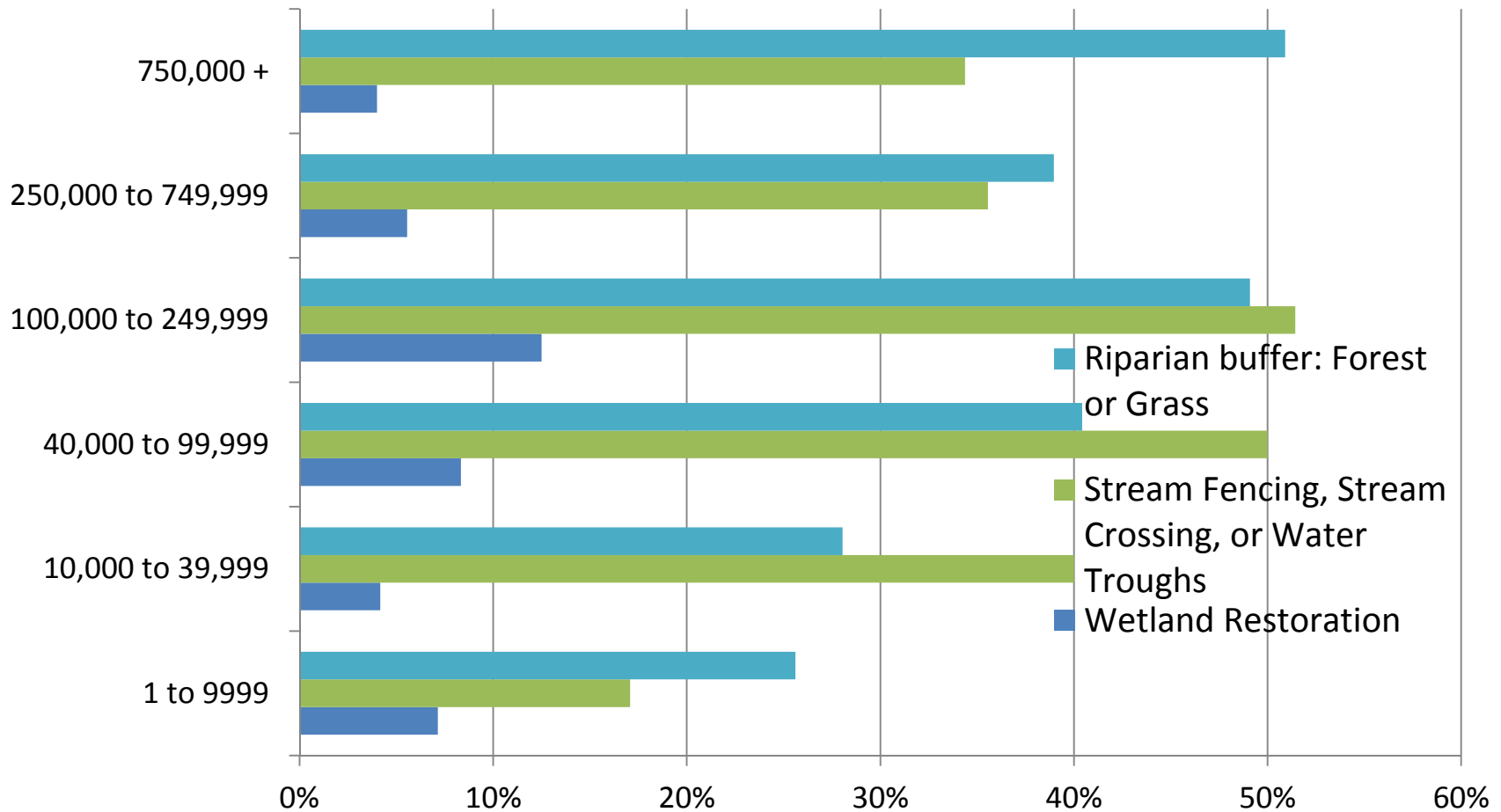
# Percentages of farmers with crop operations using crop BMPs



# Percentage of farmers with livestock operations using waste management structures

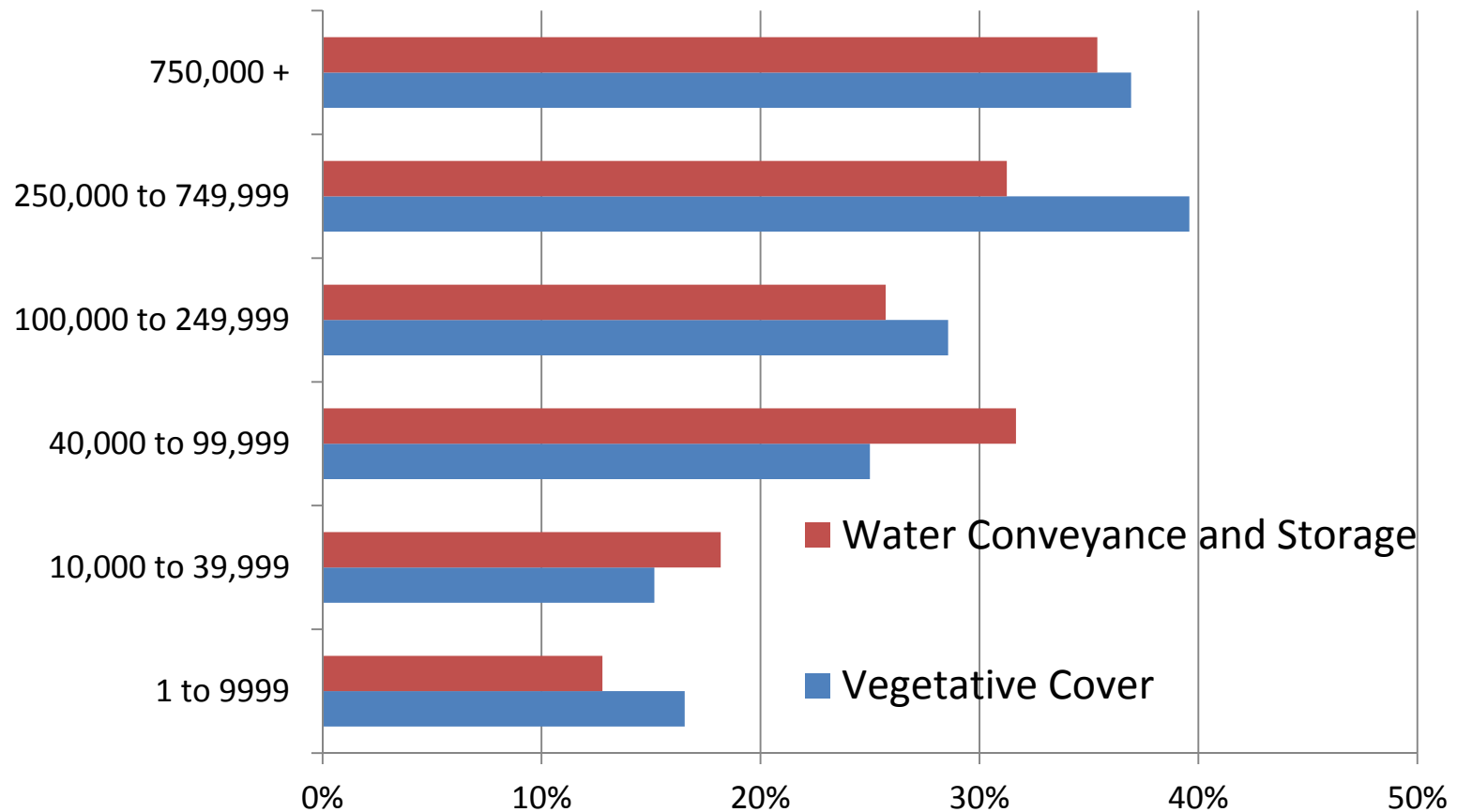


# Percentages of operations adjacent to water bodies using water protection BMPs





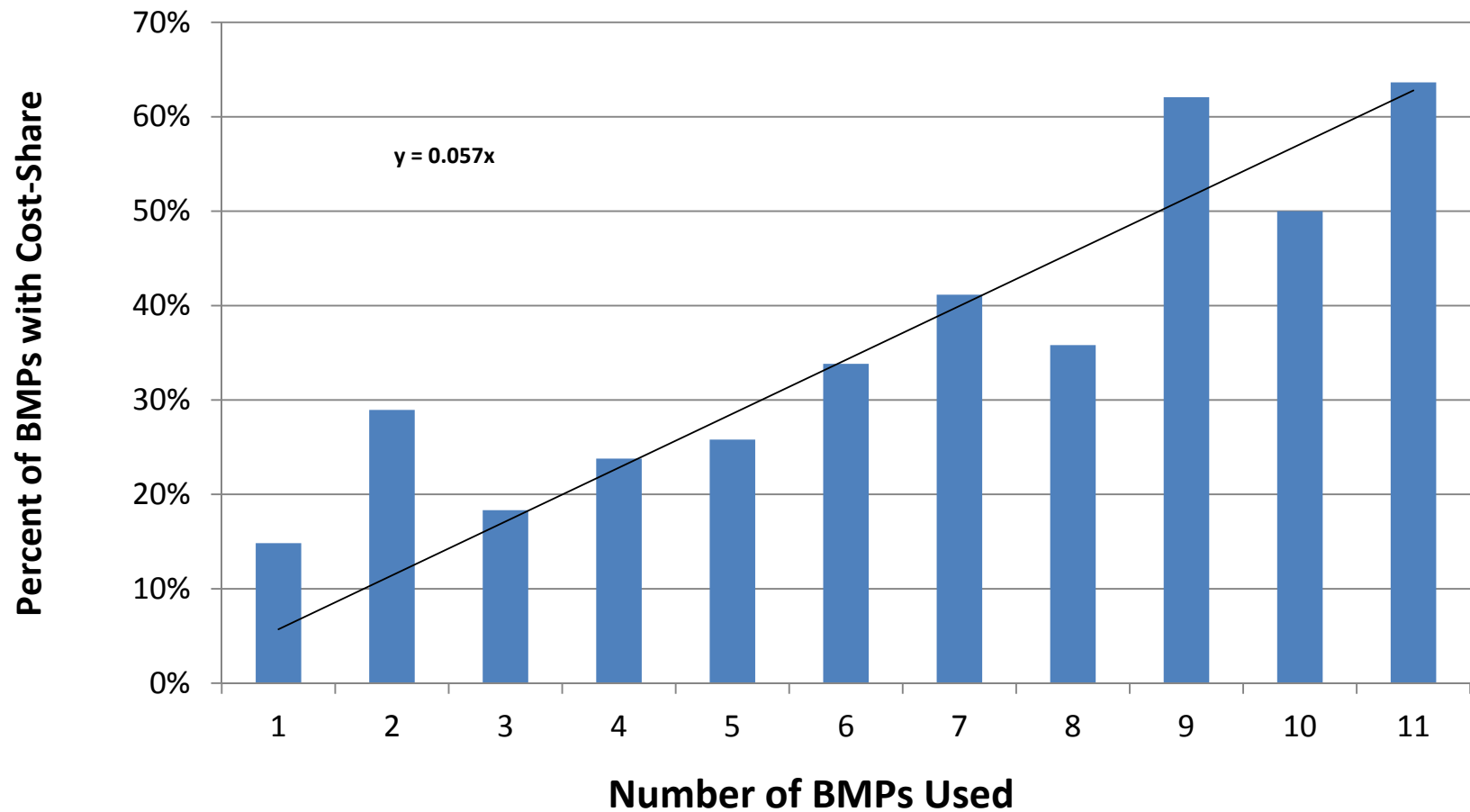
# Percentage of operations using water conveyance and vegetative cover



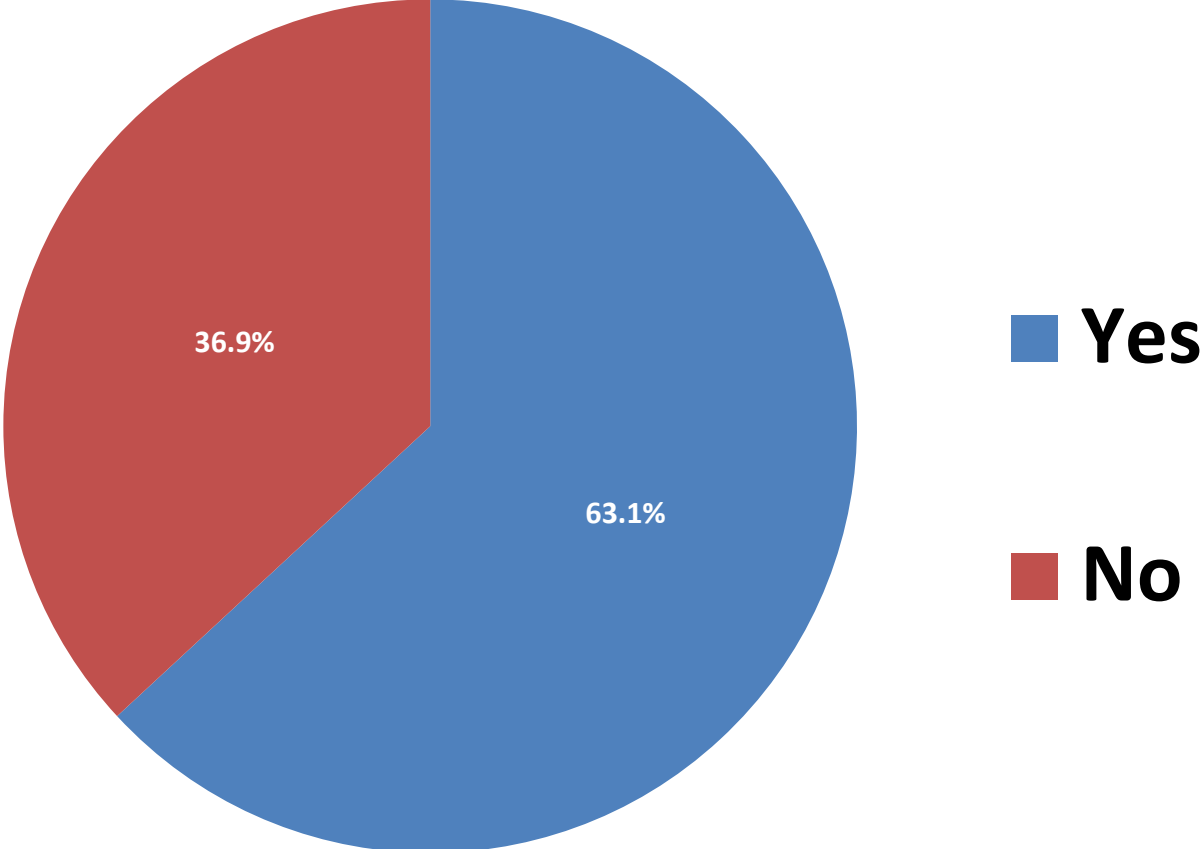
# Use of cost-sharing for BMP adoption

<b>Practice</b>	<b>Percent Using</b>	<b>Not Receiving Cost-Share</b>	<b>Receiving Cost-Share</b>	<b>Ratio Not Receiving to Receiving Cost-Share</b>
Vegetative Cover	21%	17%	4%	4.3 : 1
Water Conveyance and Storage	20%	12%	7%	1.7 : 1
Cover Crop	24%	12%	12%	1 : 1
Conservation/No Till	42%	38%	4%	10 : 1
Contour Farming	9%	9%	1%	12.8 : 1
Strip Farming	13%	12%	0%	25.5 : 1
Retirement of Highly Erodible Land	7%	6%	1%	5.5 : 1
Forest or Grass Riparian Buffer	33%	22%	10%	2.2 : 1
Wetland Restoration	7%	4%	3%	1.2 : 1
Stream Fencing, Stream Crossing, or Water Troughs	34%	19%	14%	1.4 : 1
Poultry Manure or Livestock Waste Storage Structure or Lagoon	19%	9%	9%	1 : 1
Heavy Use Poultry Area Concrete Pads	37%	19%	18%	1 : 1

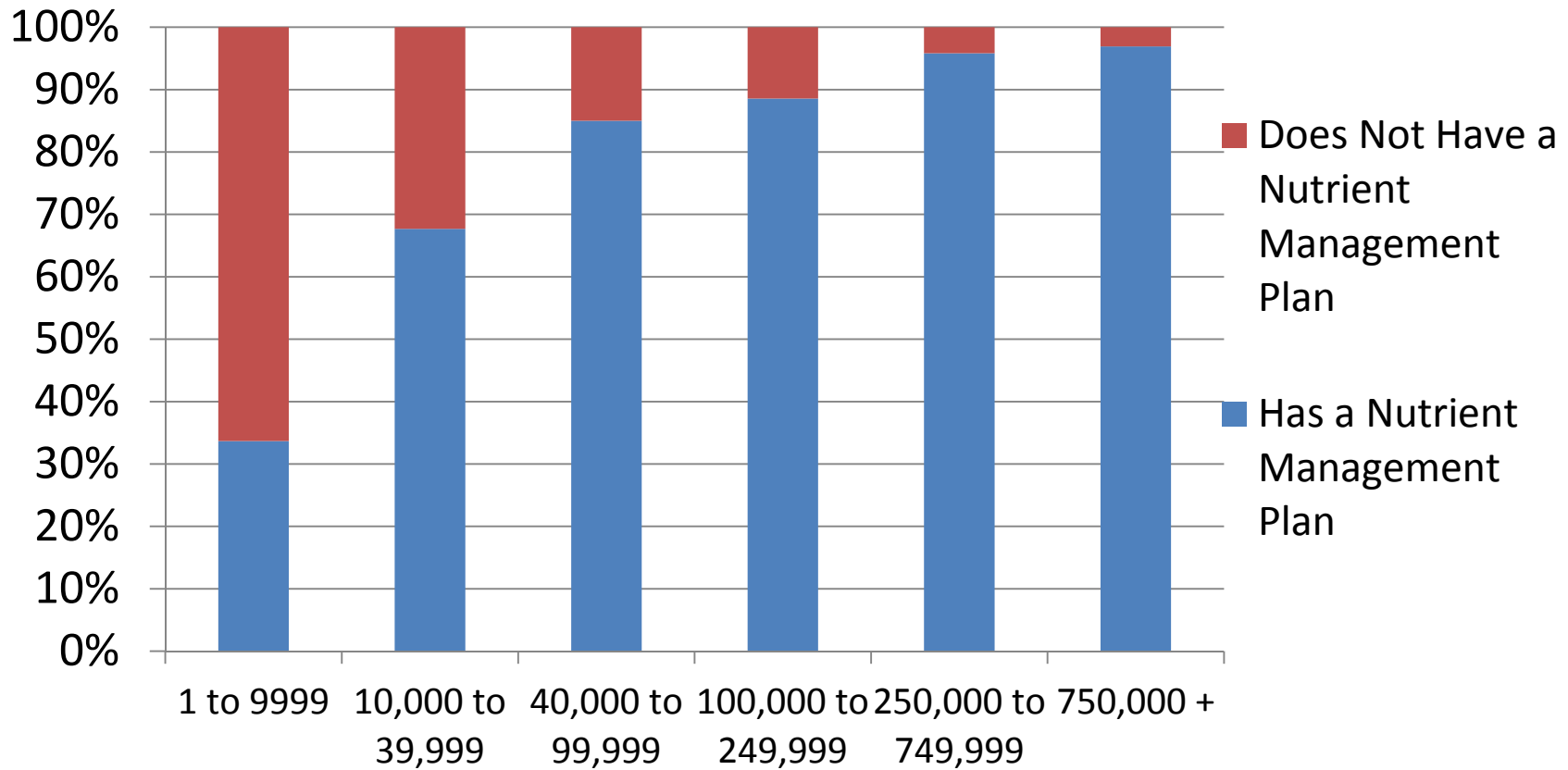
Receipt of cost sharing was more common in large operations using larger numbers of BMPs



# Do you have a nutrient management plan?



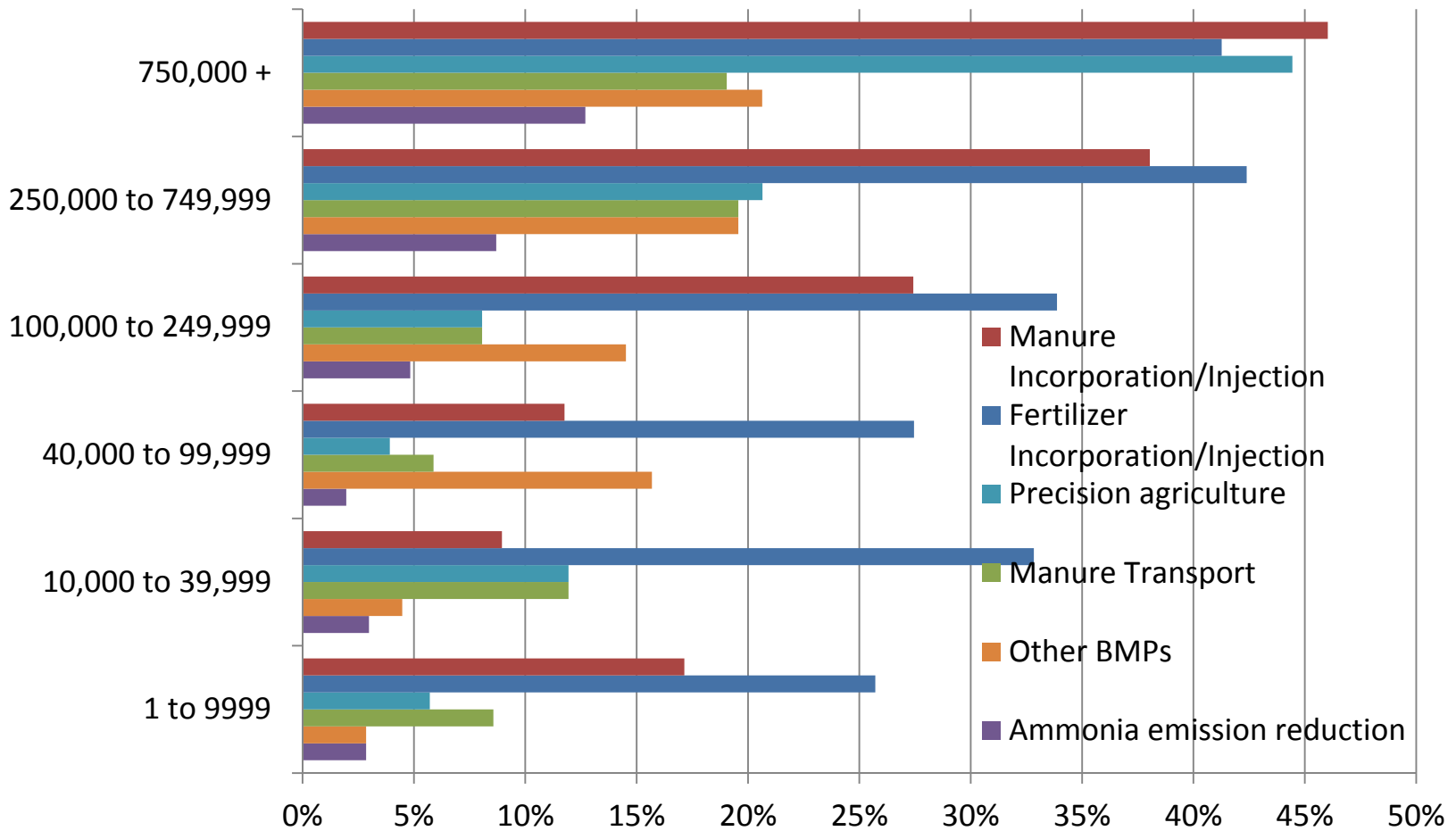
# NMP non-compliance is widespread among smaller operators



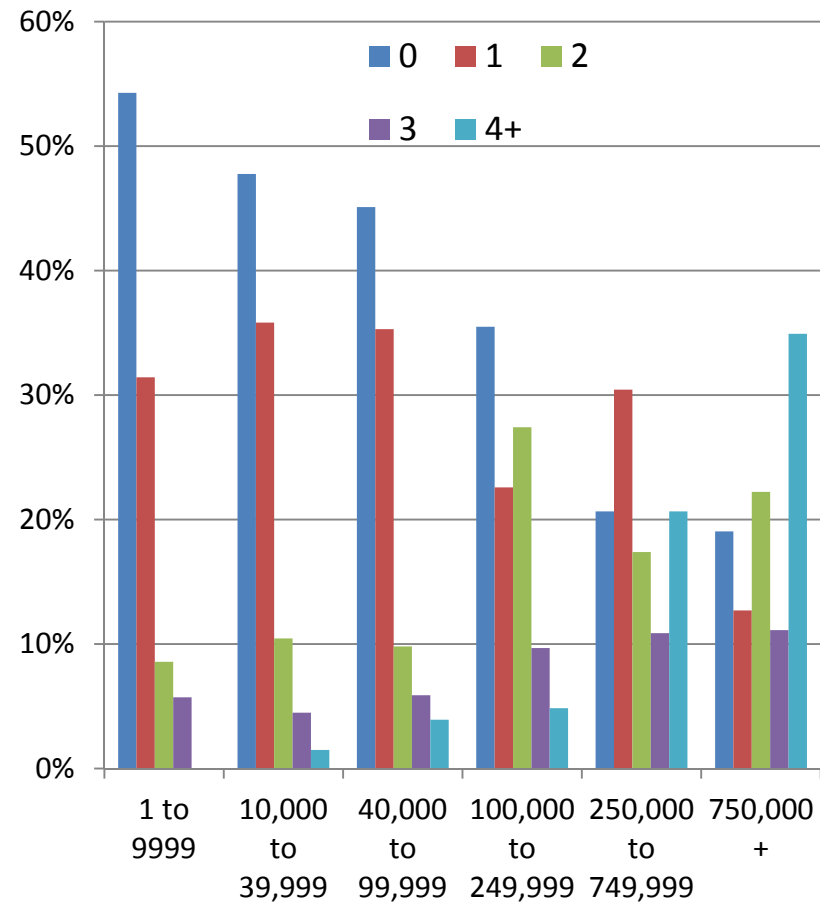
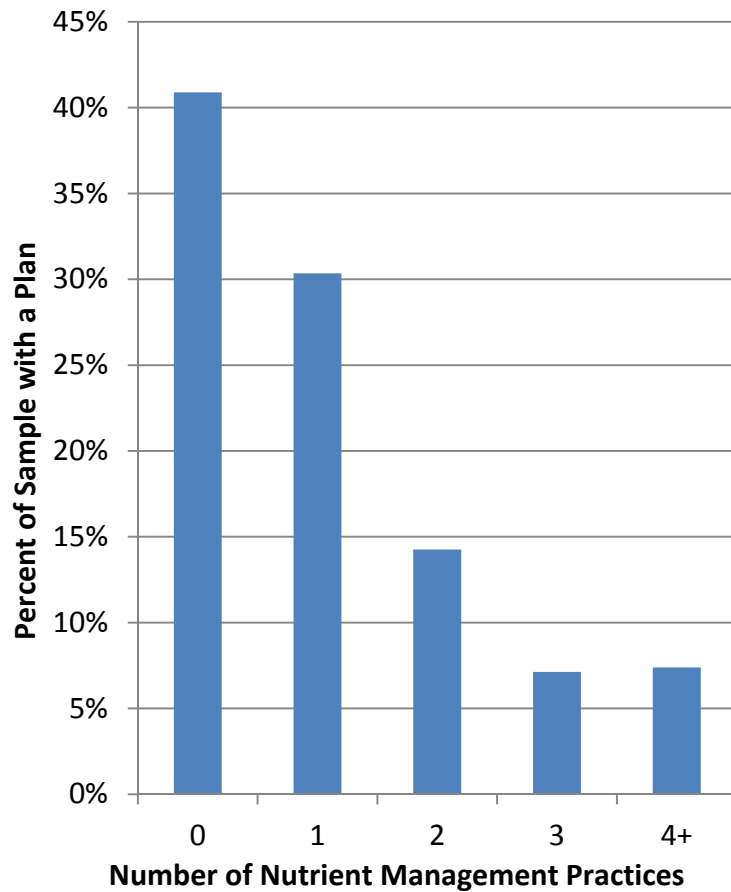
# Nutrient management BMPs included in NMPs

Practice	Percent of Farms Using Each Practice			
	Using Practice	Not Receiving Cost-Share	Receiving Cost-Share	Ratio Not Receiving to Receiving Cost-Share
<b>Conservation Practices Included in Nutrient Management Plan</b>				
Fertilizer Incorporation/Injection	32.7%	30.9%	1.7%	17.7 : 1
Manure Incorporation/Injection	20.8%	18.7%	2.1%	8.9 : 1
Manure Transport	11.4%	10.1%	1.4%	7.3 : 1
Ammonia Emission Reduction	4.7%	4.0%	0.7%	6.1 : 1
Precision Agriculture	12.7%	10.6%	2.0%	5.3 : 1
Other BMPs	10.6%	6.5%	4.2%	1.6 : 1
<b>Enhanced Techniques</b>				
Aerial Imagery and Strip Trials	4.5%	3.8%	0.7%	5.6 : 1
Corn Stalk Nitrate Testing	8.1%	6.3%	1.8%	3.5 : 1
Plant and Grain Analysis	9.1%	8.3%	0.9%	9.7 : 1
Other BMPs	4.7%	3.8%	0.9%	4.5 : 1

# Nutrient management BMP use by farm size



# Number of nutrient management BMPs contained in NMPs





# Conclusions

- Significant room for further reductions in nutrient runoff through expanded BMP adoption, cost sharing--especially on small farms.
- Small farms may contribute a significant share of nutrients: Farms with sales under \$50,000 account for 21% of cropland, 26% of cattle, and 83% of horses.
- Documentation of runoff potential by farm size should be a research priority.