

# Annual Phosphorus Loss Estimator (APLE) and Surface Phosphorus and Runoff (SurPhos) Models

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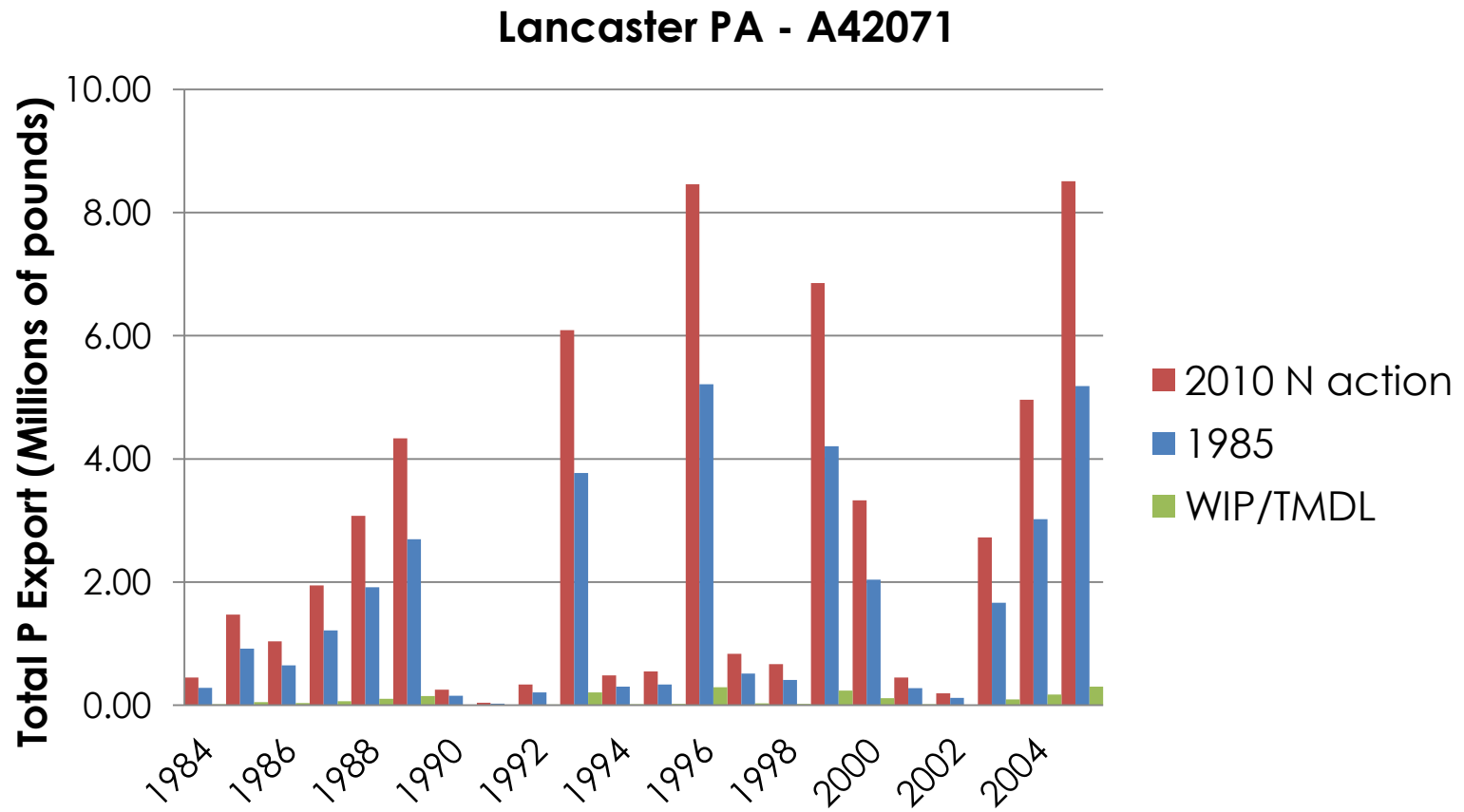
# APPLE vs SurPhos Model Capabilities

	APPLE	SurPhos
Language	It is a Microsoft Excel spreadsheet	It is written in Fortran
Time Step	Annual	Daily
Units	Metric/ US	Metric
Edge-of-field P loss	YES	YES
Simulates dissolved phosphorus loss in surface runoff	YES	YES
Simulates sediment bound phosphorus loss in surface runoff	YES	NO
Consider subsurface loss of P through leaching or artificial drainage.	NO	NO
Consider all kinds of animal manure, applied either by machine or by grazing cattle, but consider only highly soluble commercial fertilizers	YES	YES
Simulate P loss through grassed waterways or buffers that may occur beyond the field edge	NO	NO

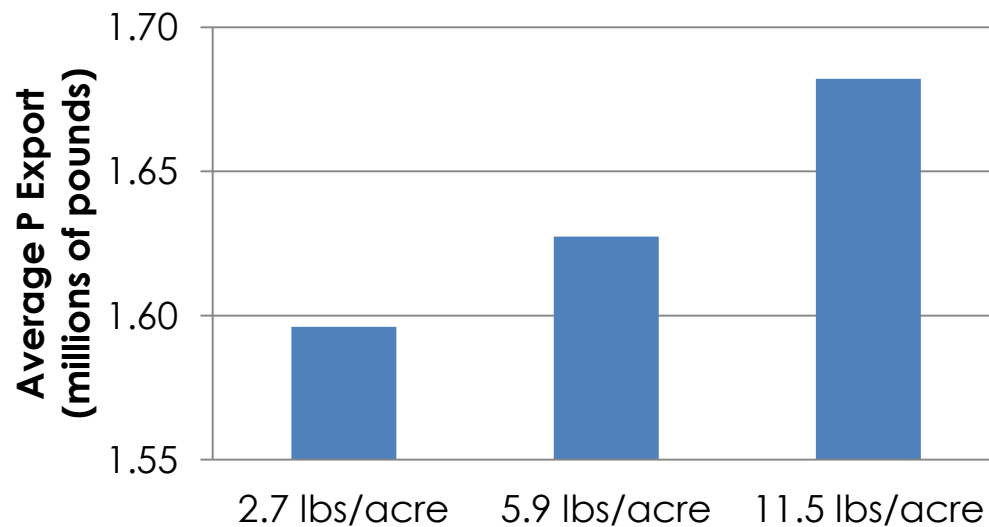
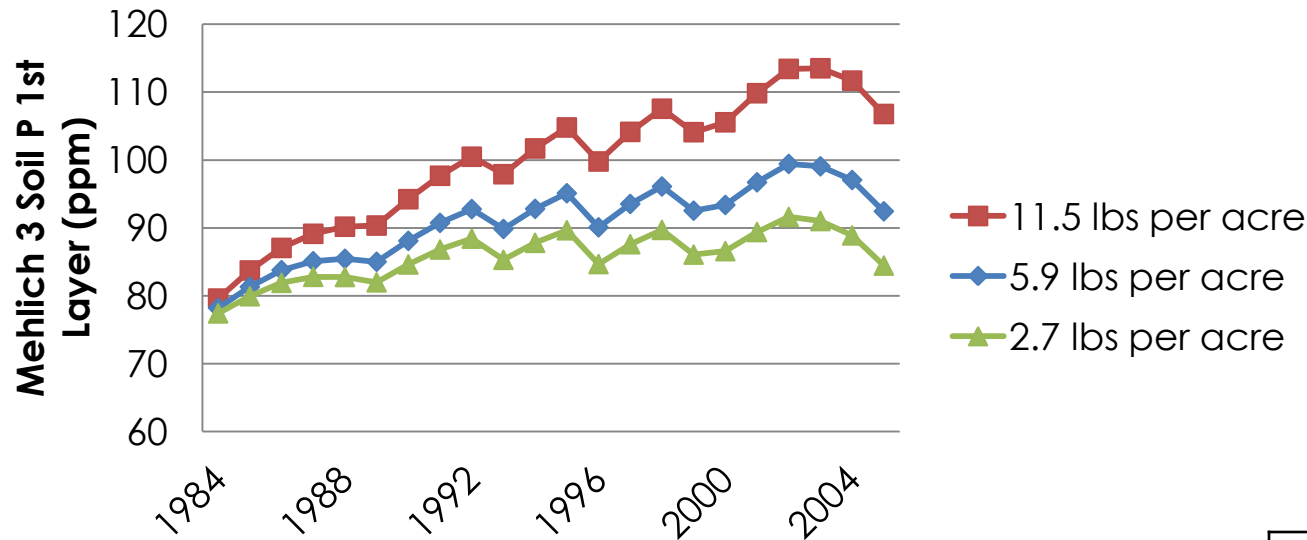
# APPLE vs SurPhos Model Inputs

	APPLE	SurPhos
Texture,organic matter and soil bulk density	YES	YES
The type of soil cover	NO	YES
The initial concentration of soil Labile P	YES	YES
Day of manure or fertilizer applications	NO	YES
Manure applications	Wet manure	Dry manure
For fertilizer applications	P2O5 applied per acre	Mass of fertilizer P applied
Precipitation and Runoff	Annual	Daily average
Temperature	-	Daily average
Sediment	Annual	-
When grazing animals are present	YES	YES

# APPLE Scenario Runs Using P532 Inputs

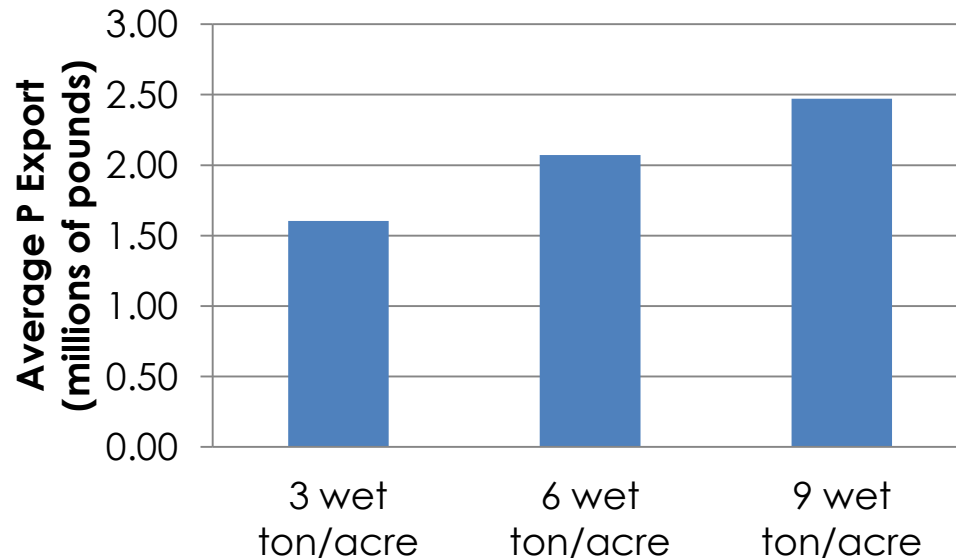
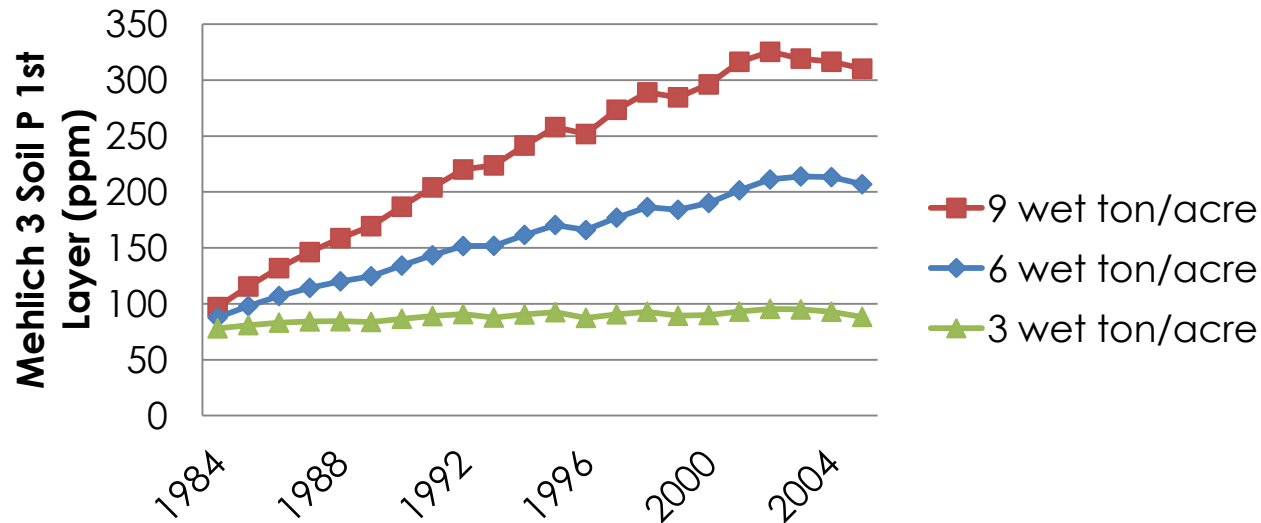


# APPLE Sensitivity to Fertilizer Inputs



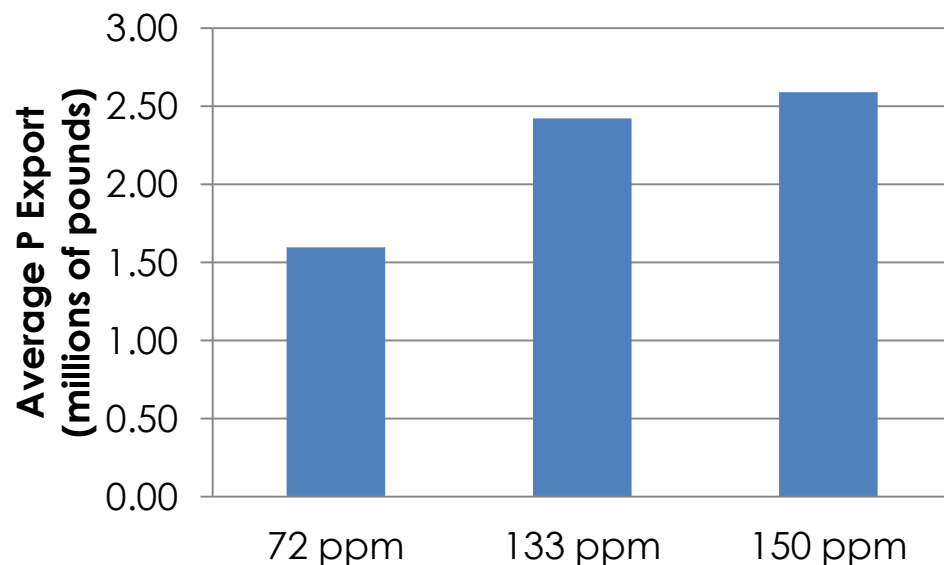
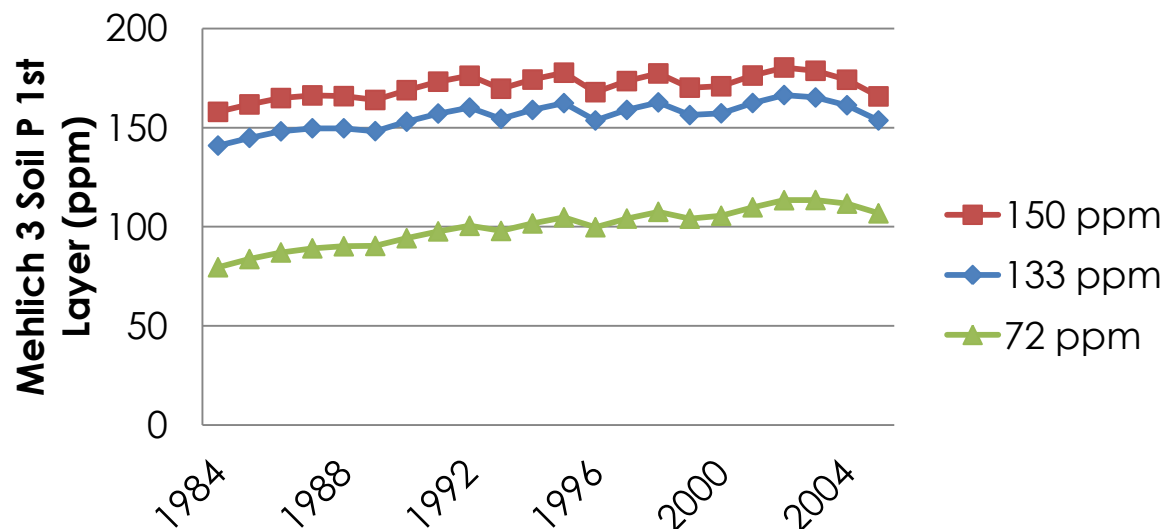
Constant Inputs	
Manure	3 Wet ton/ac
Initial Soil P Content	72 ppm

# APPLE Sensitivity to Manure Inputs



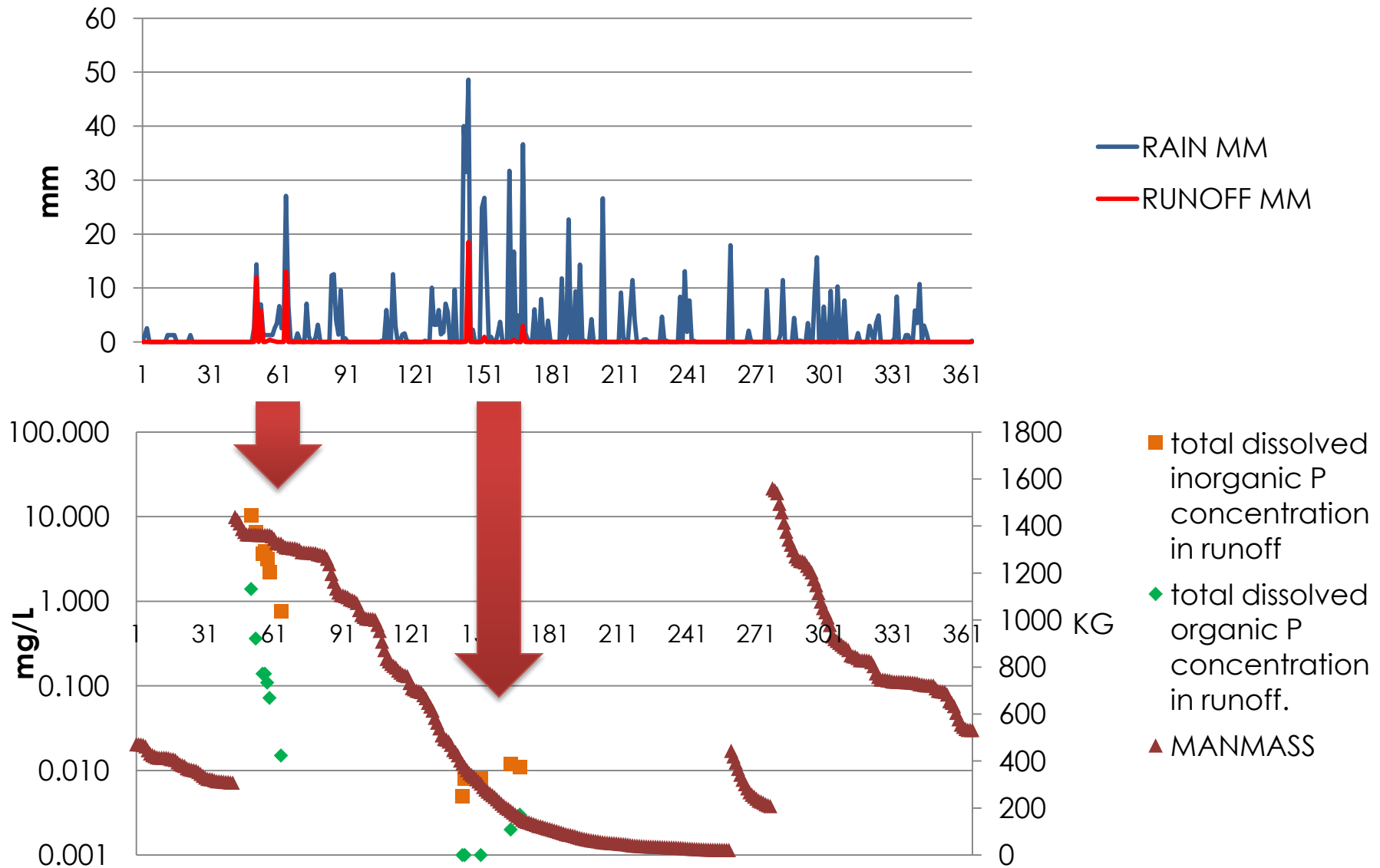
Constant Inputs	
Fertilizer P2O5	2.7 lbs/ac
Initial Soil P Content	72 ppm

# APPLE Sensitivity to Initial Soil P Content



Constant Inputs	
Fertilizer P2O5	2.7 lbs/ac
Manure	3 Wet ton/ac

# SurPhos Model Daily Output





# APLE/SurPhos Model in Phase 6

- Implement APLE/SurPhos
- Acquire input data
- Run sensitivity analysis
- Include in SurPhos simulation runoff loss of sediment P.