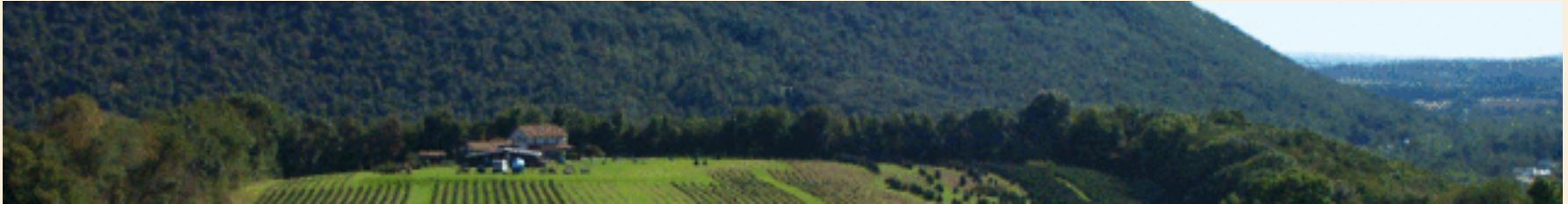




Nutrient Tracking Tool



Crediting Protocol

Quantification = Translation

May 2011



What did you do?

- Trees planted
- Stream miles/acres treated
- Thermal energy
- Lbs of Nitrogen, Phosphorus





Nutrient Tracking Tool

- Quantifies edge-of-field reductions in nitrogen and phosphorus on farms and ranches
- Developed by USDA for water quality crediting
- Uses information on soils, weather and agricultural practices to calculate the effects of implementing conservation practices
- Outputs for Nitrogen, Phosphorus, Sediment (Lbs/year) Flow and yield.

Soils

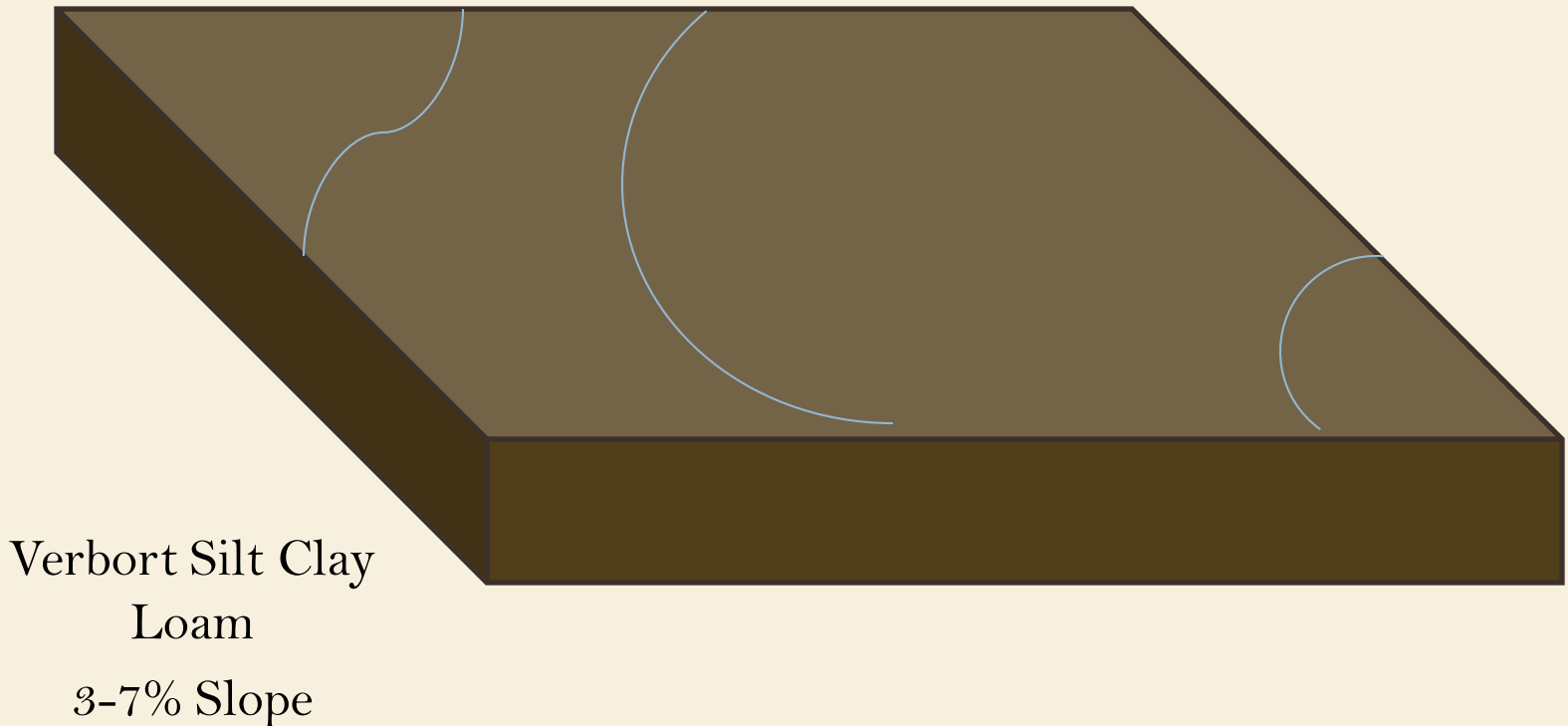
- Web Soil Survey
- Includes soil type and slope

Willamette Silt Loam

3-7% Slope

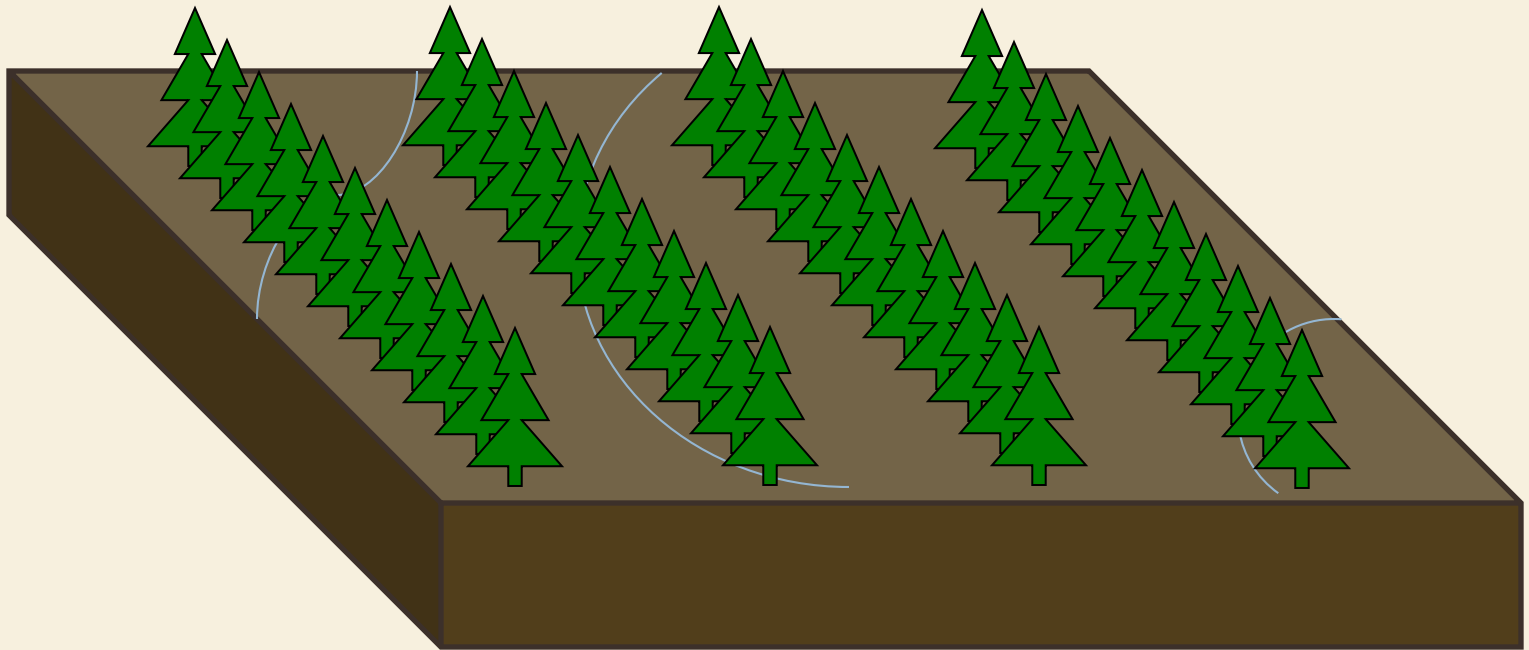
Woodburn Silt Loam

3-7% Slope



Crops

- Standard set of crop types with management
- Edit management actions and timing (planting, tilling, mowing, harvest, fertilize, irrigate etc)





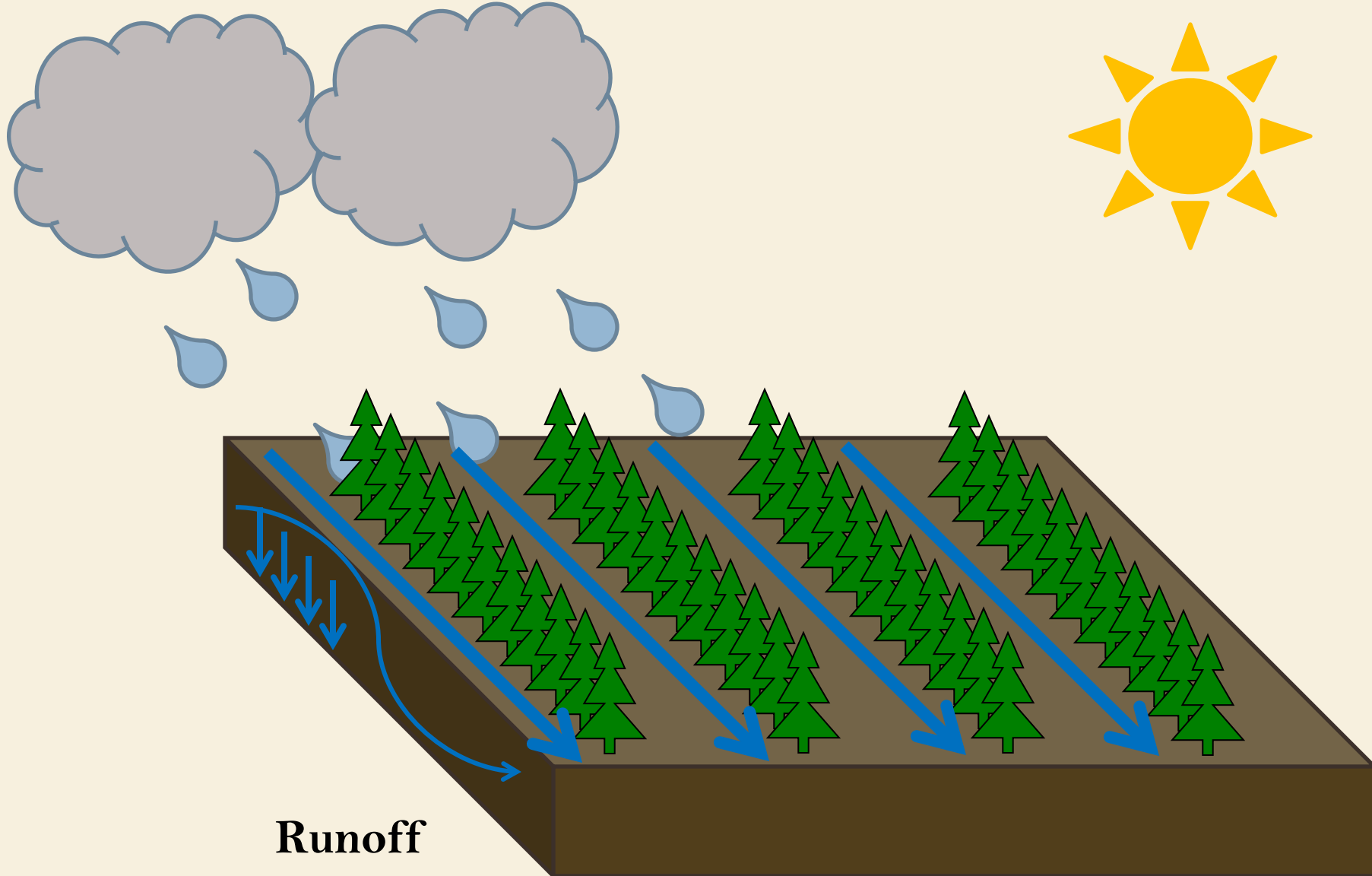
Assumptions/limitations

- One-directional flow
- No rills, gullies, or direct conveyance
- Field scale: modeled only to edge of field, not through adjacent fields or through the water body
- Models rotation average over 42 years



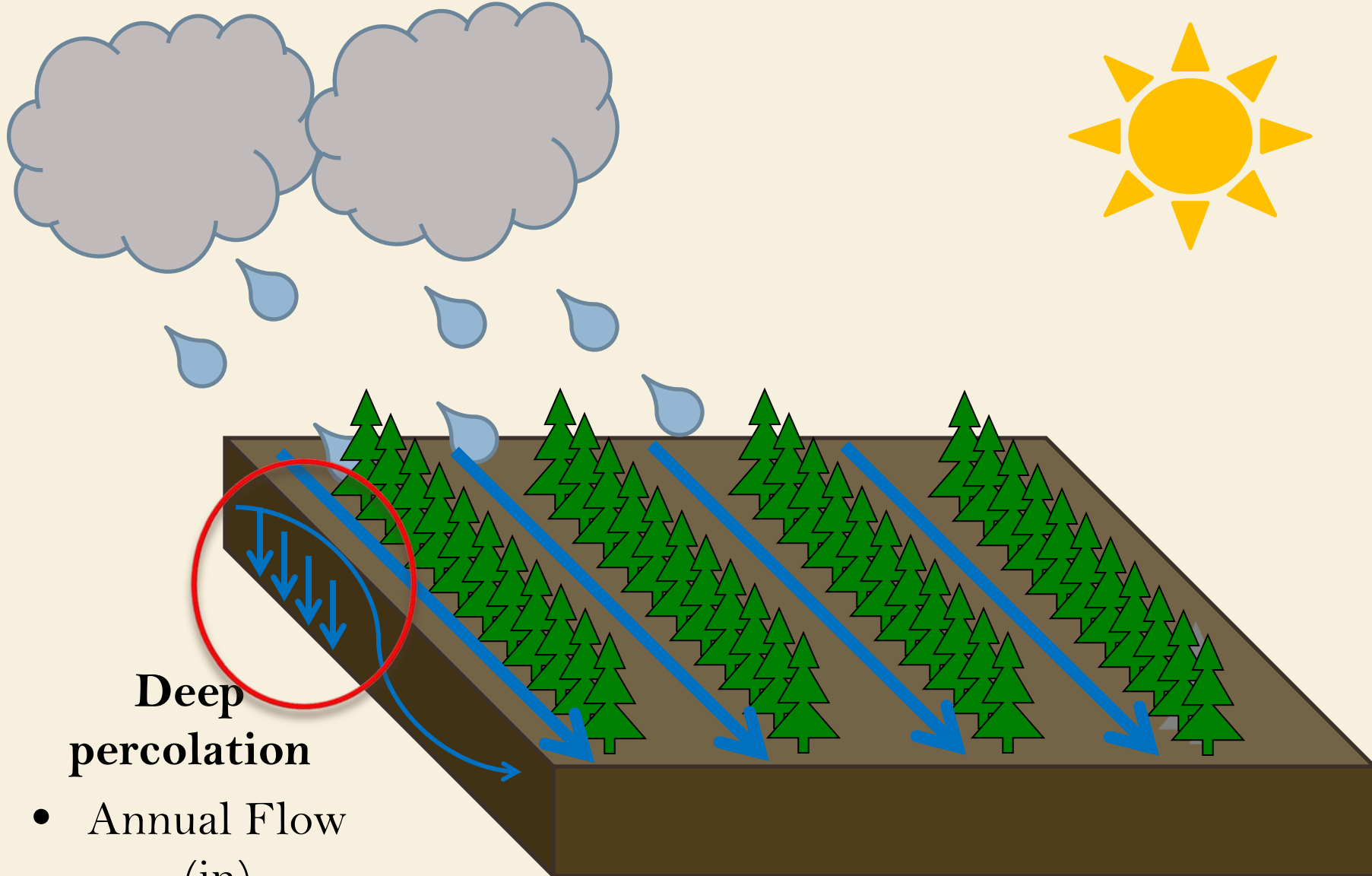
Assumptions/limitations

- Modeled as a square
- Not all crops have profile yet (e.g. blueberries, raspberries)



Runoff

- Irrigation practices
- 42 years of climate data
- Daily time step



Deep percolation

• Annual Flow
(in)

Edge of Field

- Total Nitrogen
- Sediment
- Yield
- Total Phosphorus
- Flow



Actions NTT can quantify

- Riparian buffer/restoration
- Fencing/animal exclusion
- Cover crops
- Crop rotation
- Conservation tillage
- Nutrient management (changes in fertilizer use)
- Filter strips



Validation

- NTT runs on 36 projects in Klamath, Tualatin, and Yamhill
- Literature review (one paper with measured edge-of-field data)
- Expert opinion on NTT outputs
- Focus on N and P outputs, not on crop yield, flow, or sediment



Groundwater Calibration

- Partners
 - Benton SWCD
 - Land Council of Governments
 - EPA
 - Oregon DEQ
 - Willamette Partnership



Groundwater Calibration

- Review of existing data on BMP
- Lysimeter data collection on “new” BMPs
- Calibration and validation of NTT
- Stakeholder engagement

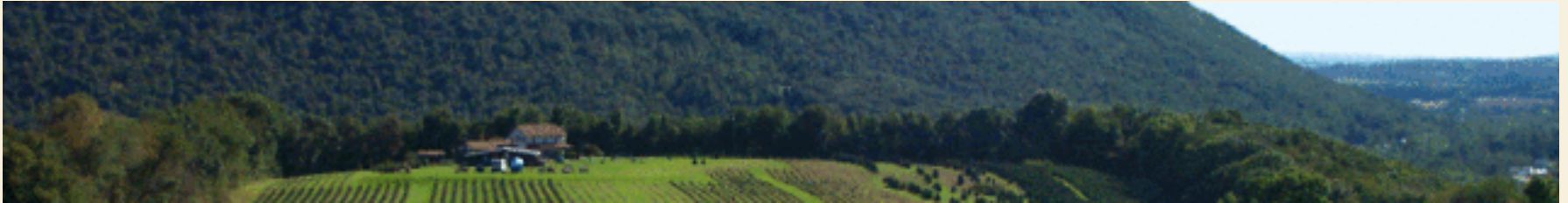


Other NTT Efforts

- Data uploads for functionality in CA, WA, ID
- Data review, calibration, and validation in Klamath
- Updates to improve application to dairies in the Russian River
- Yakima, WA dairy and manure management



Questions?



USDA United States Department of Agriculture
Natural Resources Conservation Service
Agricultural Research Service
the in-house research arm of the U.S. Department of Agriculture
TIAER
NITT
Nutrient Tracking Tool

A horizontal banner with a futuristic, glowing background. It features logos for USDA, Agricultural Research Service, and TIAER on the left, and the acronym "NITT" and the full name "Nutrient Tracking Tool" in large, glowing green and yellow letters on the right.