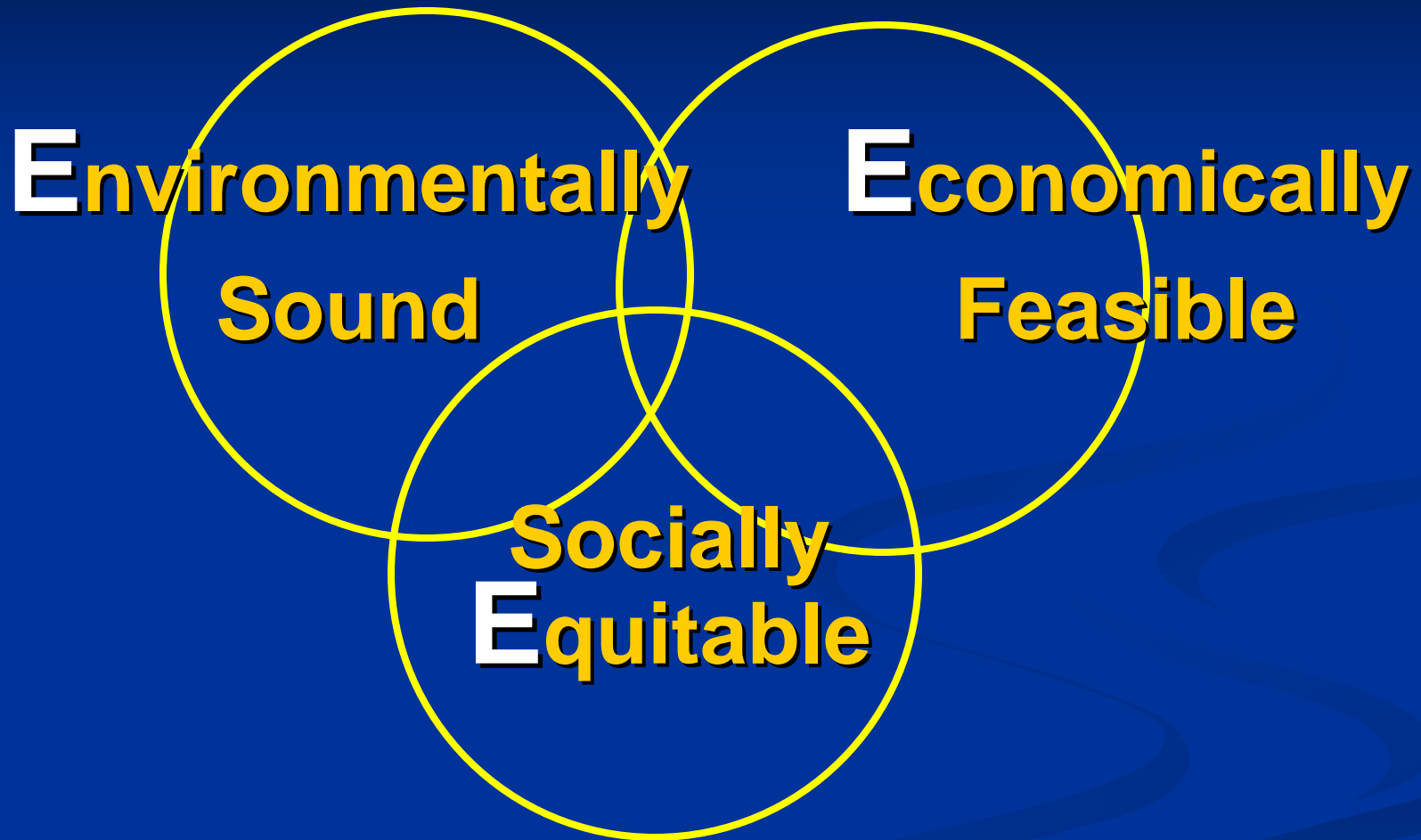




Composting Mulching and Mowers

Harold Huntley, Manager
Warren Morgan Orchards

Principles of Sustainability



The 3 E's are our Triple Bottom Line

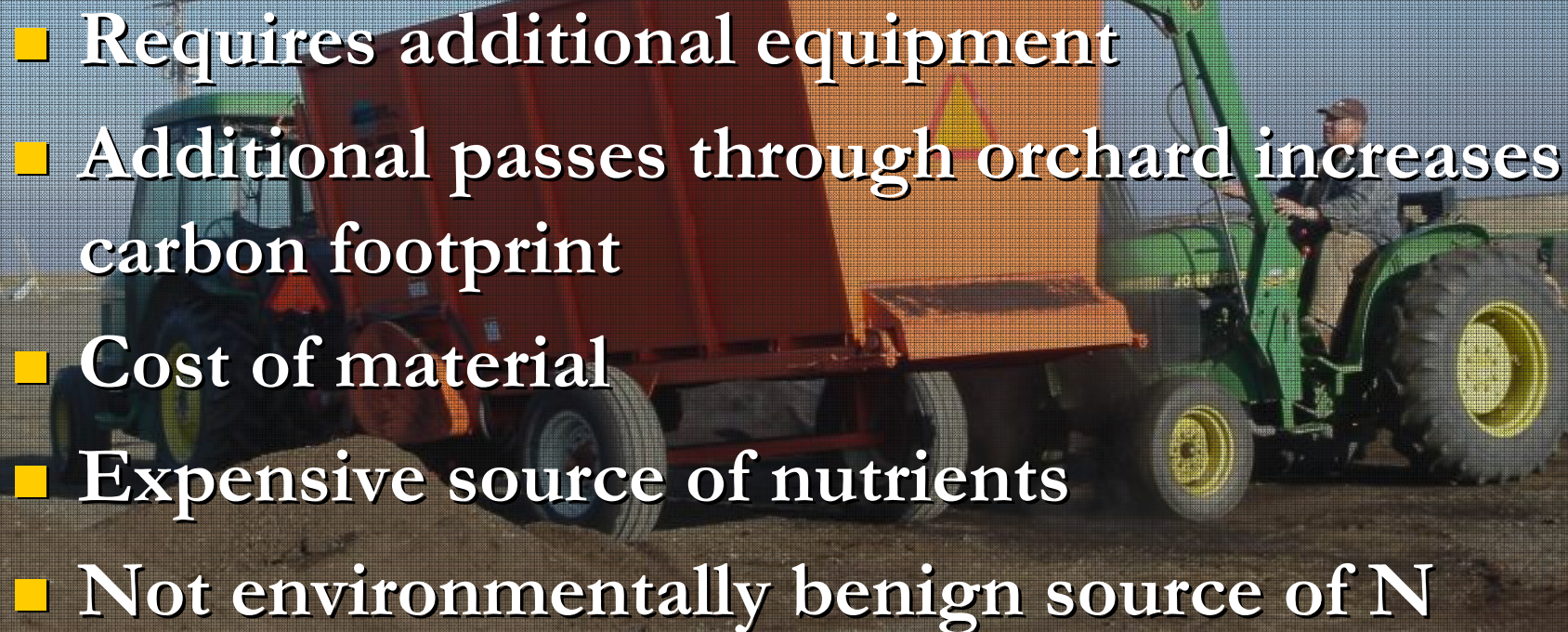
Is Composting Sustainable?

A green tractor pulling a red trailer is driving through a field of young trees. The tractor is in the center, moving away from the viewer. The trees are arranged in rows on both sides of the tractor. The background shows a clear sky and some utility poles.

Positives

- Adds organic matter to soil
- No food safety issues
- Source of macro & micro nutrients
- Increases CEC/reduces leaching of nitrogen
- Increases soil porosity/reduces runoff
- Fuels microbes in soil/releases N
- Increases microbial biodiversity in soil

Negatives

- Requires additional equipment
 - Additional passes through orchard increases carbon footprint
 - Cost of material
 - Expensive source of nutrients
 - Not environmentally benign source of N
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Compost: What Kind & How Much?

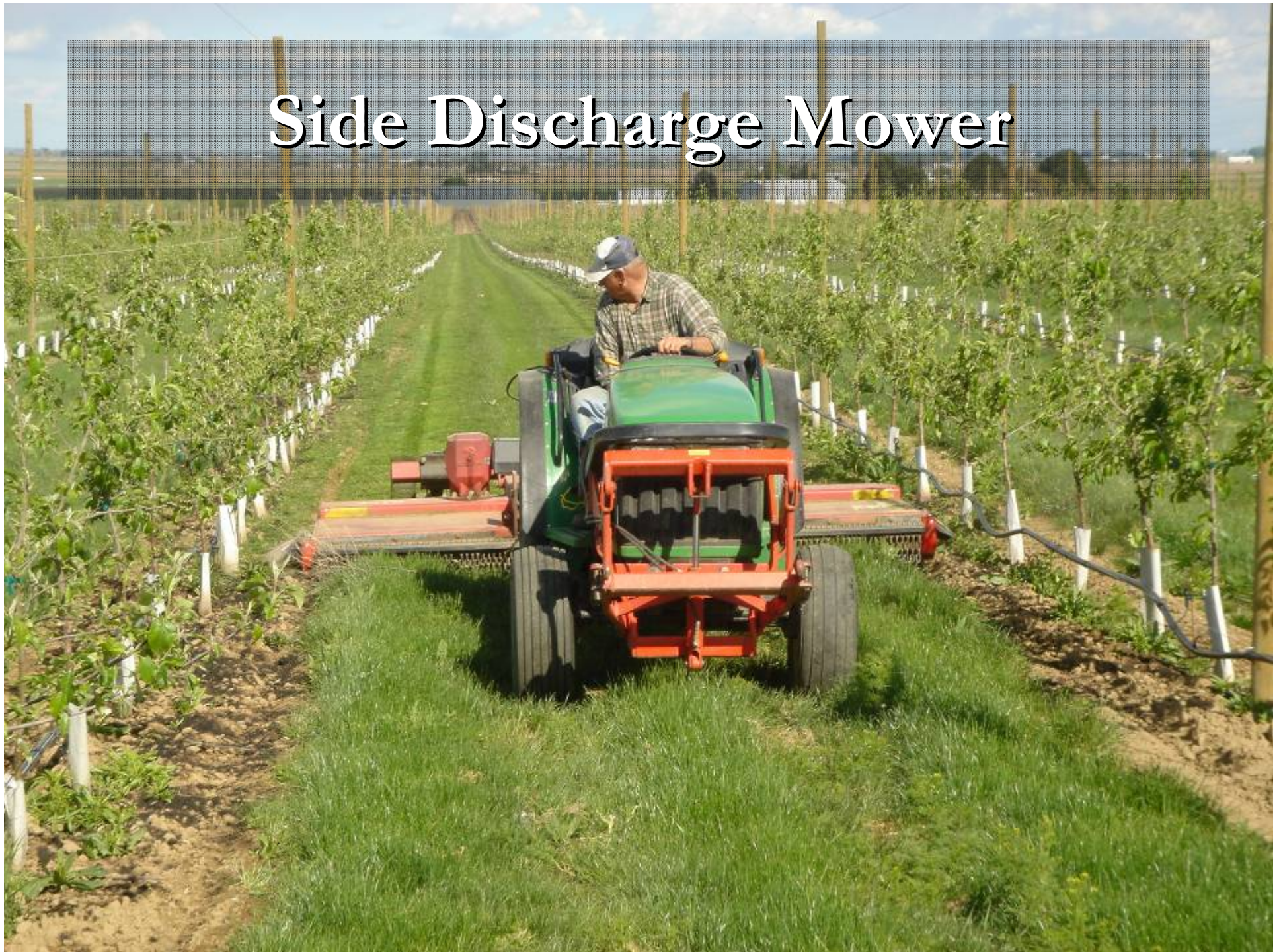
Mint

- 2.5% Nitrogen
- Local source
- Minimal salts or other contaminants
- 4-5 tons/acre

Mowing: Lots of Time to Think



Side Discharge Mower



Composting and Mulching



- Compost adds humus & retains nutrients
- Decomposing OM feeds soil microbes
- Decomposing OM releases stored nutrients



Side Discharge/Mulching Mower

- Reduced passes with mower
- Reduced passes with weed sprayer
- Reduced herbicide
- Reduced irrigation

Nitrogen in the Bank

- Accumulated 4 T/acre dry material
- $8000 \times .02 = 160$ lbs. in the bank

Improved Biodiversity

The background image shows a close-up of dark, rich soil with various organic matter and small organisms. Three white circles highlight specific areas: one at the top left, one in the middle left, and a large one at the bottom right containing a centipede.

- Springtails
- Centipedes
- Earthworms
- Fungus
- Molds

Results: Year One

- Less diesel burned
- Less wear and tear on equipment
- Less herbicide used
- Less water and power
- Healthier groundcover
- Increased biodiversity

Future Plans

- Inoculate mulch-increase rate of decomposition
- Renew groundcover in older blocks
- Legumes in groundcover to fix N





Thank You