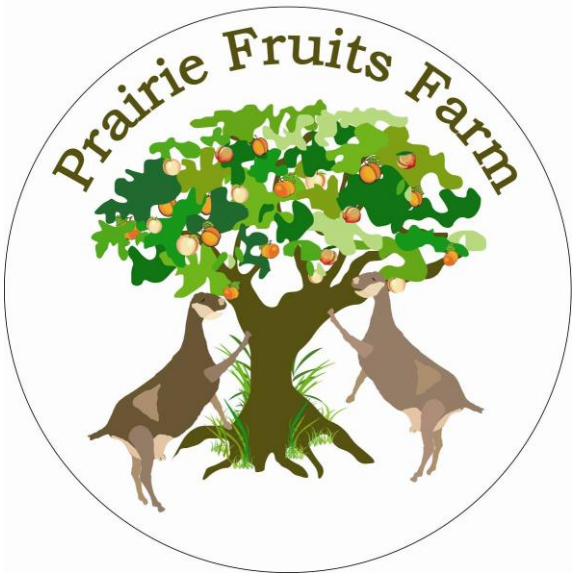
Principles of Organic Agriculture



Wes Jarrell

Prairie Fruits Farm and Creamery

Three books

- Pay Dirt, J.I. Rodale, 1945 (my copy printed 1948)
- Radical Agriculture, Richard Merrill (ed.), 1976
- Organic Manifesto, Maria Rodale, 2010

Can we keep this in mind?

- The organic concept is a forerunner of how an economic base can be given to idealistic concepts.
  - Jerry Goldstein, ***Radical Agriculture*** 1976

Abridged Organic High Points

- 1932: Sir Albert Howard publishes ***The Waste Products of Agriculture***
- 1940: Lord Northbourne: ***Look to the Land***, 1940 – first written reference to "organic farming"
- 1942: ***Organic Gardening*** magazine founded by J.I. Rodale
- 1945: ***Pay Dirt***, written by J.I. Rodale
- 1981: Robert Rodale starts farming systems trial
- 1990: Robert killed in auto accident in Moscow
- 1990: Organic Foods Production Act of 1990 – USDA charged with creating national rules
- 2010: Maria Rodale publishes ***Organic Manifesto*** calling for wholesale conversion to organic farming

The recognized problem

(After describing Rodale's path from urbanite to intense organic farmer)

"All this is very refreshing in a world which tends to become more and more superficial, due in large measure to that disease of civilization – fragmentation – by which such intimately related subjects as agriculture, food, nutrition, and health have become split up into innumerable rigid and self-contained little units, each in the hands of some group of specialists." Sir Albert Howard, introduction to ***Pay Dirt*** by J.I. Rodale, 1945.

Maria Rodale, ***Organic Manifesto***, 2010

- “But as the chemical paradigm is about controlling nature, the organic paradigm is about respecting nature.”
- “…disconnectedness vs connectedness.”

Lord Northbourne, ***Look to the Land***, 1940

- "In the long run, the results of attempting to substitute chemical farming for *organic farming* will very probably prove far more deleterious than has yet become clear. And it is perhaps worth pointing out that the artificial manure industry is very large and well organized. Its propaganda is subtle, and artificials will die hard'" (p. 103).
  - *Generally acknowledged as first written use of term "organic farming"*

Lord Northbourne, ***Look to the Land***

And further:

- “the farm itself must have a biological completeness; it must be a living entity, it must be a unit which has within itself a balanced organic life”

Sir Albert Howard

Louise Howard (in her husband's memorial publication): " The birthplace of organic agriculture was in 1931 in Rimini, Italy, on the shores of the Adriatic", where Sir Albert edited the proofs of a slim book called ***The Waste Products of Agriculture***

Lady Eve Balfour, The Living Soil

- Founded the Soil Association in England, 1942

”There are two motivations behind an ecological approach--one is based on self interest, however enlightened, i.e. when consideration for other species is taught solely because on that depends the survival of our own.

“The other motivation springs from a sense that the biota is a whole, of which we are a part, and that the other species which compose it and helped to create it, are entitled to existence in their own right. This is the wholeness approach and it is my hope and belief that this is what we, as a federation, stand for (to IFOAM in 1977).

And then there's USDA Crop standards

- Must be grown on land that has been free of prohibited pesticides and substances for at least three years before harvest
- Consistent careful management of soil fertility
- Correct dispersal of manure
- Use prevention as the first form of pest control
- Must have buffer zones that protect from the flow of unwanted substances from nearby farms

USDA Livestock standards

In order for livestock to be certified organic it must:

- Be fed organic food
- Growth hormones, promoters or plastic pellets in food are prohibited
- Vitamins and minerals are permitted
- Animals cannot be overcrowded
- Animals must be given allotted time outdoors in direct sunlight
- Antibiotics may not be used routinely
- Records must be kept on these practices for each animal or flock of animals

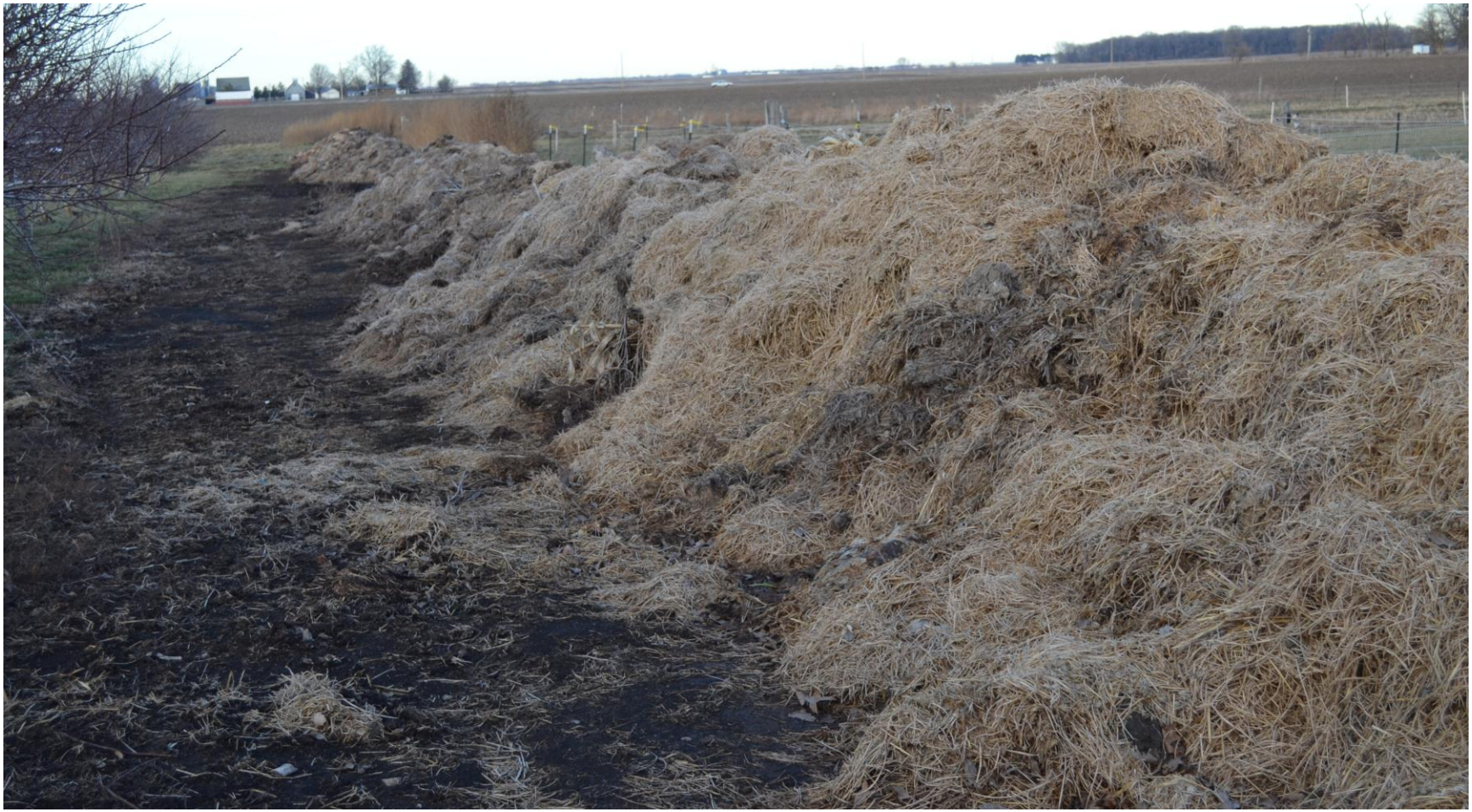
Properties of successful organic agricultural systems

- Building soil organic matter and health
- Resilient to climatic variability
- Resilient to pest and disease damage
- Products healthy for animals and humans
- Diverse subsystems in time and space
- Efficient nutrient, carbon, and water use
- Complements societal dynamics
- Provide economic stability for family

Properties of successful organic agricultural systems

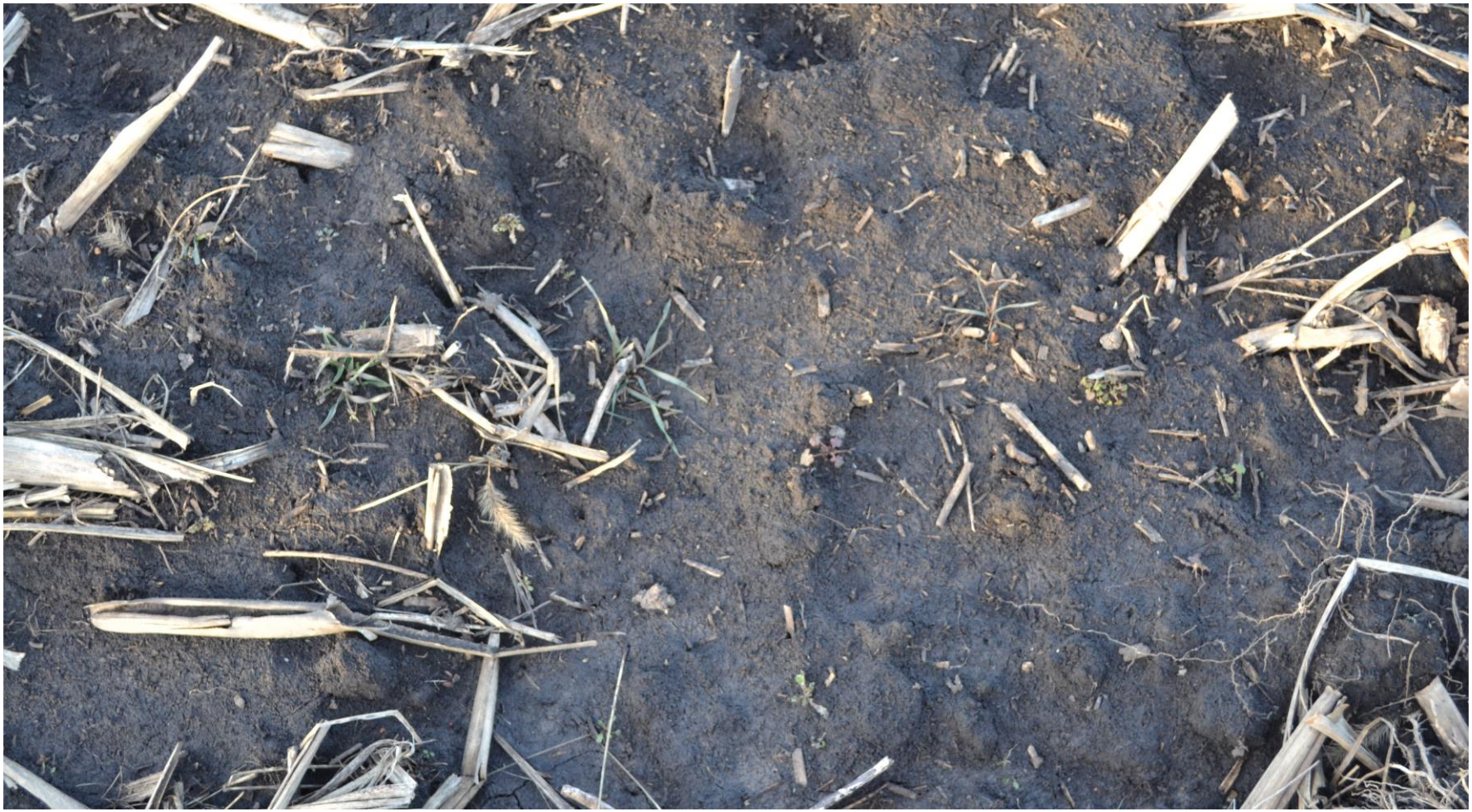
- Building soil organic matter
  - Recyle all available nutrients
  - Low-till, low disturbance
  - Keep roots alive and active as long as possible
  - Deep and shallow root systems

Compost – from barn to fields



(Nearly) no living plants

Can you find hints of life?



Living roots and tops, full cover

Properties of successful organic agricultural systems

- Resilient to climatic variability
  - Diverse growth habits: vegetative pasture, perennials, annuals
  - Enhanced soil structure: infiltration, retention, plant-available water

Poor soil management - gullies

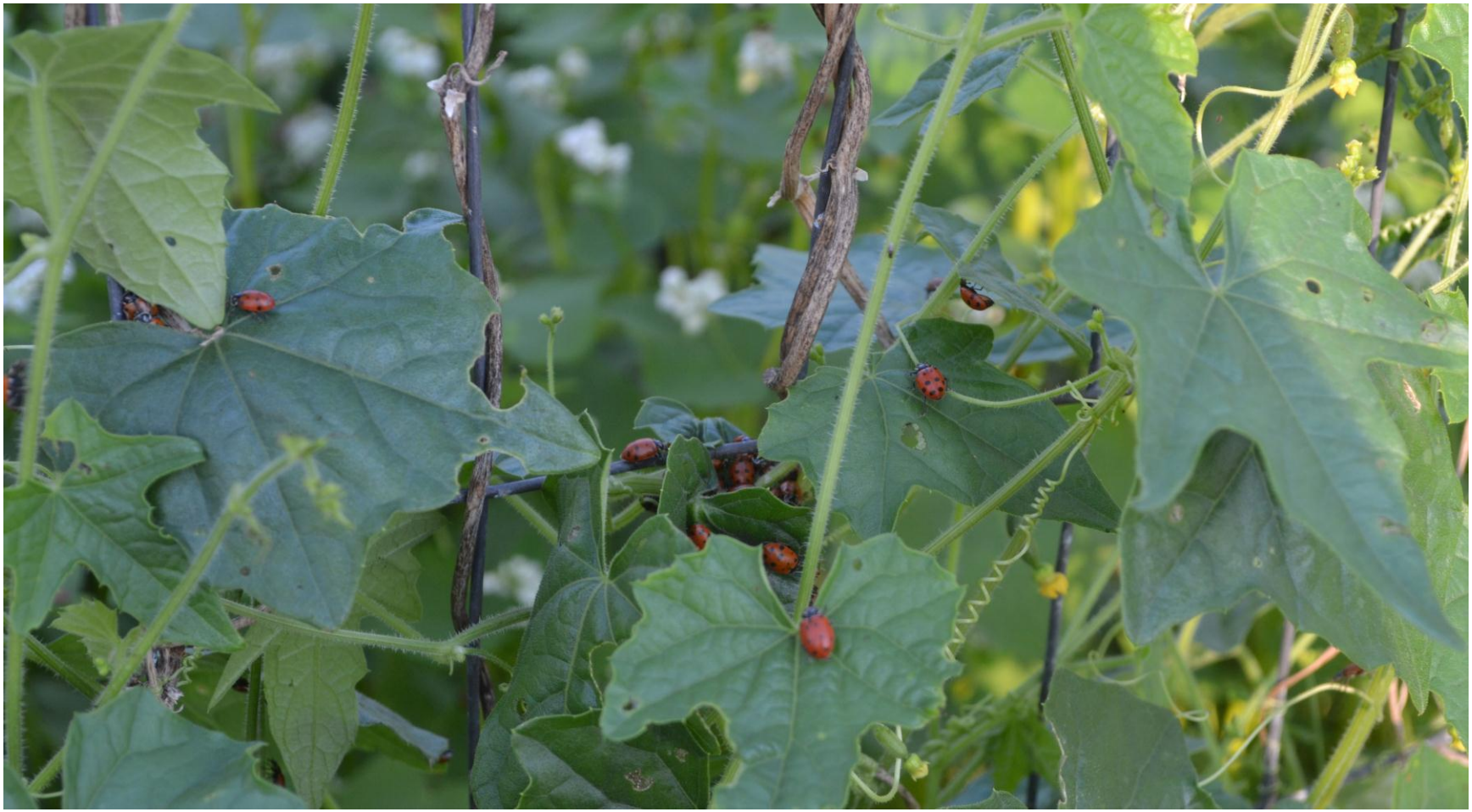
Properties of successful organic agricultural systems

- Resilient to pest and disease damage
  - Diverse crops
  - Natural enemies, resistant plants
  - Healthy plants

Two in one tree

Encourage beneficials

Lady beetles on cucumber



Properties of successful organic agricultural systems

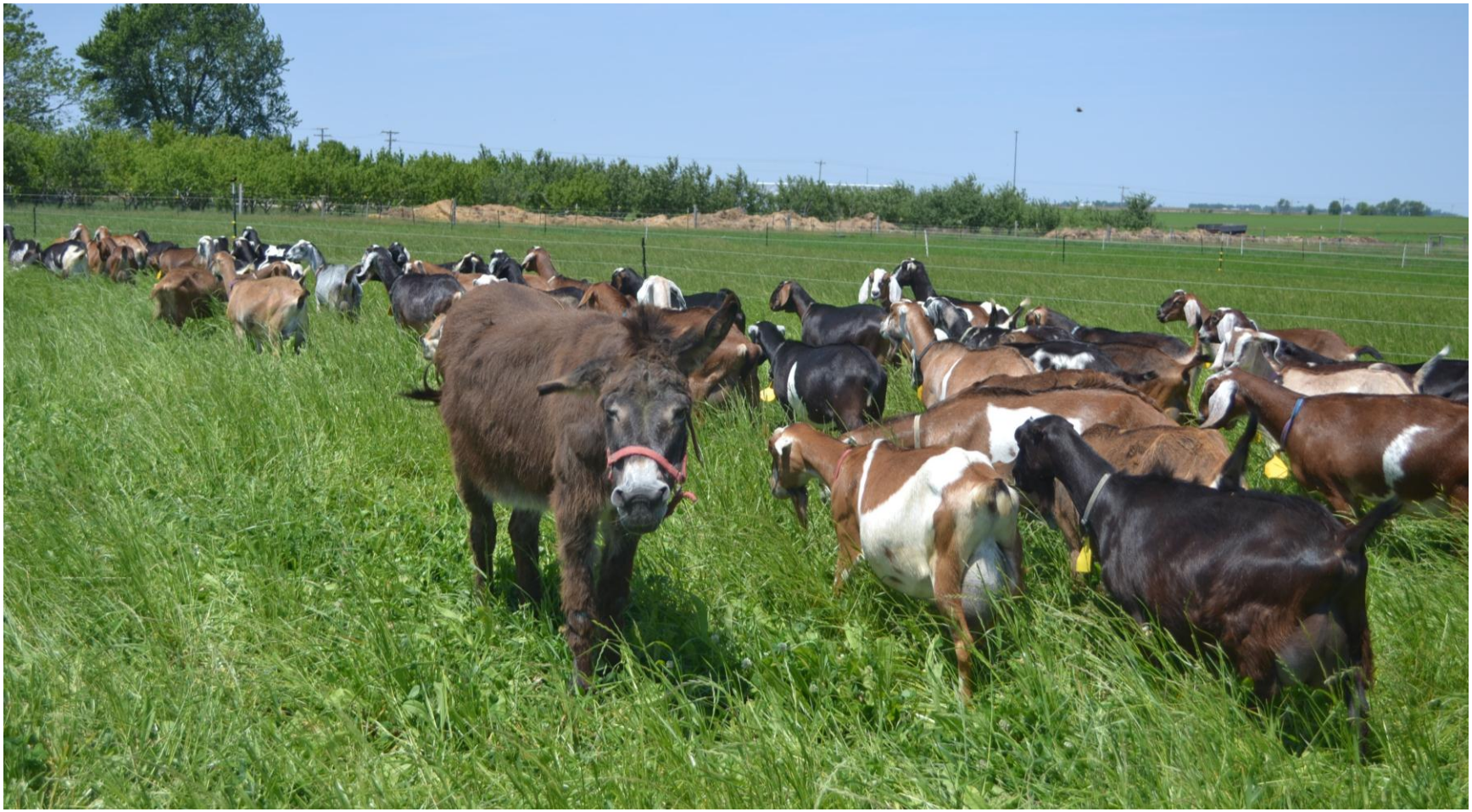
- Products healthy for animals and humans
  - Eat it in the field without washing off sprays!
  - Healthy ingredients, healthy products

Blue mold – it's good for you!

Properties of successful organic agricultural systems

- Diverse subsystems in time and space
  - (space) multiple cropping, diverse vegetables, pastures
  - (time) Rotation with cover crops and other crops

Mixed breed grazing



Chickens give eggs, eat scraps and bugs

Diverse understory cover

Diverse plantings

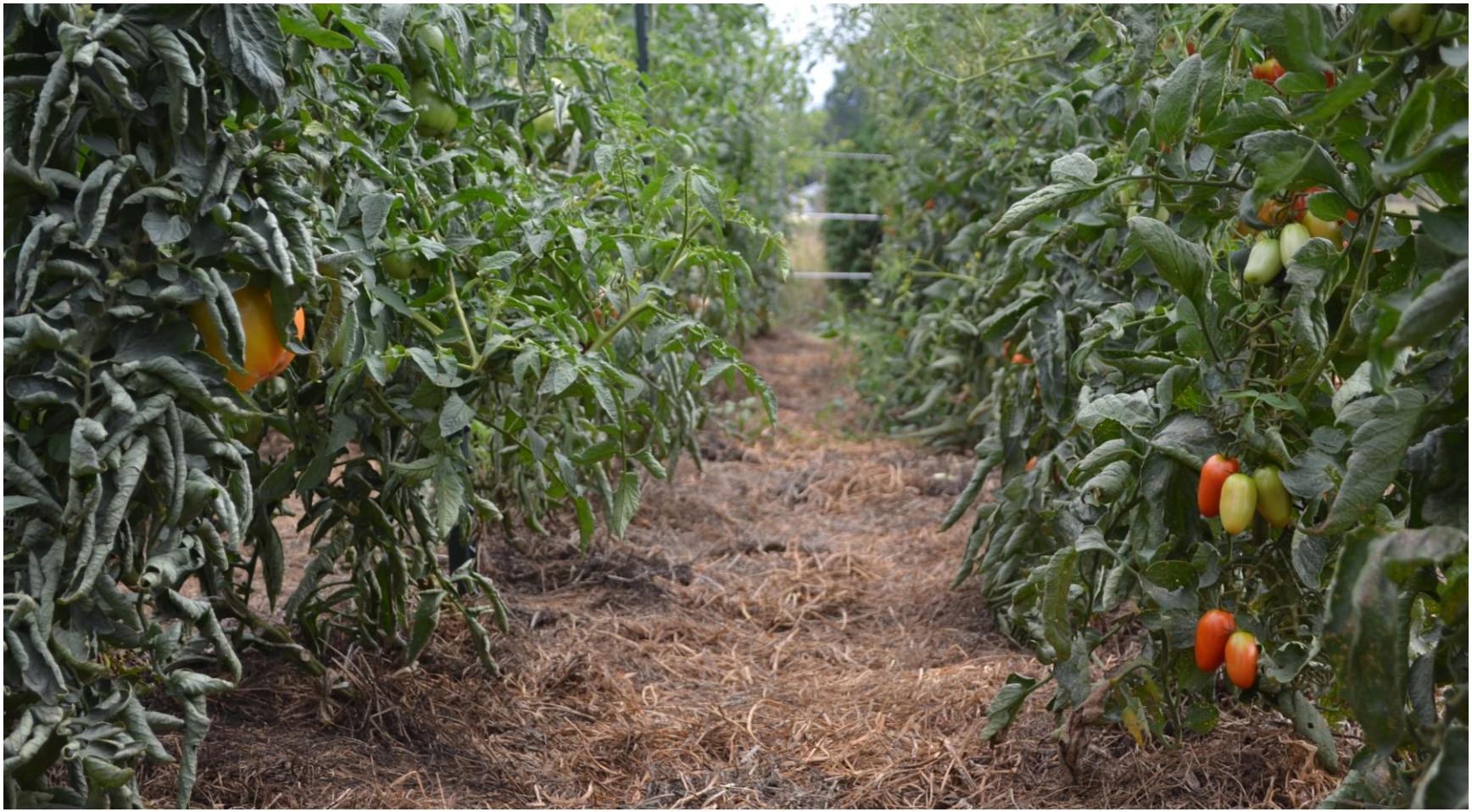
Lady beetles

Honeybee on chicory

Properties of successful organic agricultural systems

- Efficient nutrient, carbon, and water use
  - Recycle organic products
  - Keep soils covered to avoid runoff

Mulched tomatoes



Properties of successful organic agricultural systems

- Enhances communities and society in general
  - Educate about food, ecology, systems
  - Taste it!
  - Share food with others

The Outside World meets working goats

Blueprint for Survival (1972)
The Economist

- Minimum disruption of ecological processes;
- Maximum conservation of materials and energy;
- A social system in which the individual can enjoy, rather than feel constricted by, these conditions;
- Systematic substitution of the most dangerous aspects of present technology with ones that cause minimum disturbance to natural processes;
- Decentralization of economy at all levels;
- Formation of communities small enough to be reasonably self-regulating and self-supporting

Organic/Local

- “It (organic agriculture) is a substitute for national-brand advertising via television, newspapers, or magazines; the word organic when truly defined cannot have a national brand name because its essence is its localization and personalization.”
  - Jerry Goldstein, in ***Radical Agriculture***, ed. Richard Merrill, 1976

Part of each dollar spent on organically - produced foods should mean:

- Less money for pesticides and artificial fertilizers;
- More money for farmers and farmworkers;
- More jobs with adequate compensation on farms growing crops by labor-intensive organic methods – less forced migration to city ghettos
- More economic incentives to bring composted wastes from city to farmland
- More economic support for small entrepreneur: farmer, ma/pop grocery, *local* brand name;
- More demand for personal services, less for mass-distributed, environmentally hazardous products
- More incentive to have local farmers supply the local market
  - Jerry Goldstein, ***Radical Agriculture***

Organic

- Does it refer to
  - Organic molecules and recycling: fundamental but limited

Or is it

Organic as in “referencing the organism”: integrated, balanced system that is alive.

Sir Albert Howard (Introduction to ***Pay Dirt***, 1945)

"Everywhere knowledge increases at the expense of understanding.

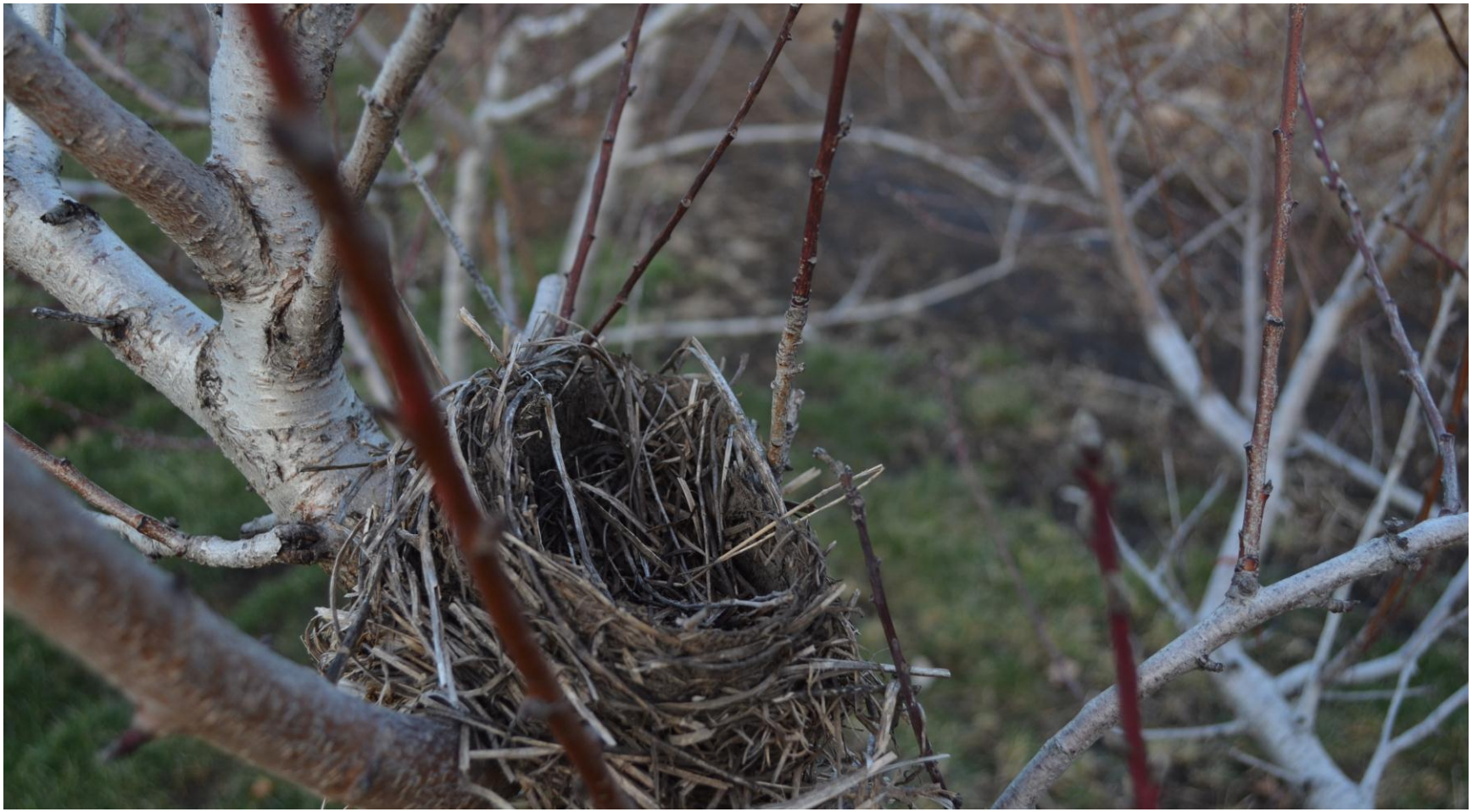
"The remedy is to look at the whole field covered by crop production, animal husbandry, food, nutrition, and health as one related subject and then to realize the Great Principle**…**

the birthright of every crop, every animal, and every human being is health."

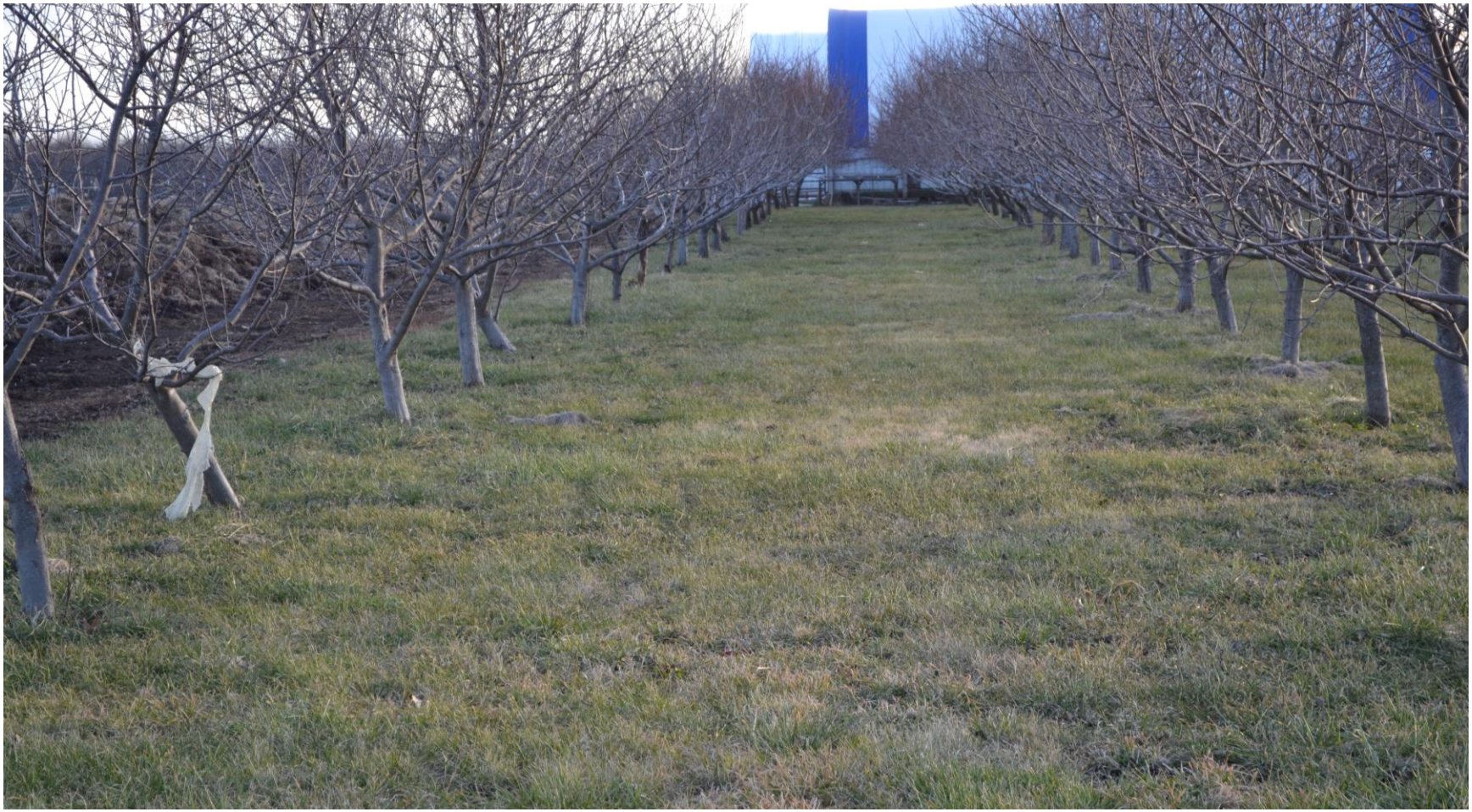
Sir Albert, Intro to ***Pay Dirt***

- “In the United States no less than 700,000,000 British pounds a year is spent on medical fare for dealing with disease of various kinds, much of which would never have occurred had the restitution of the manurial rights of the soil received proper attention.”

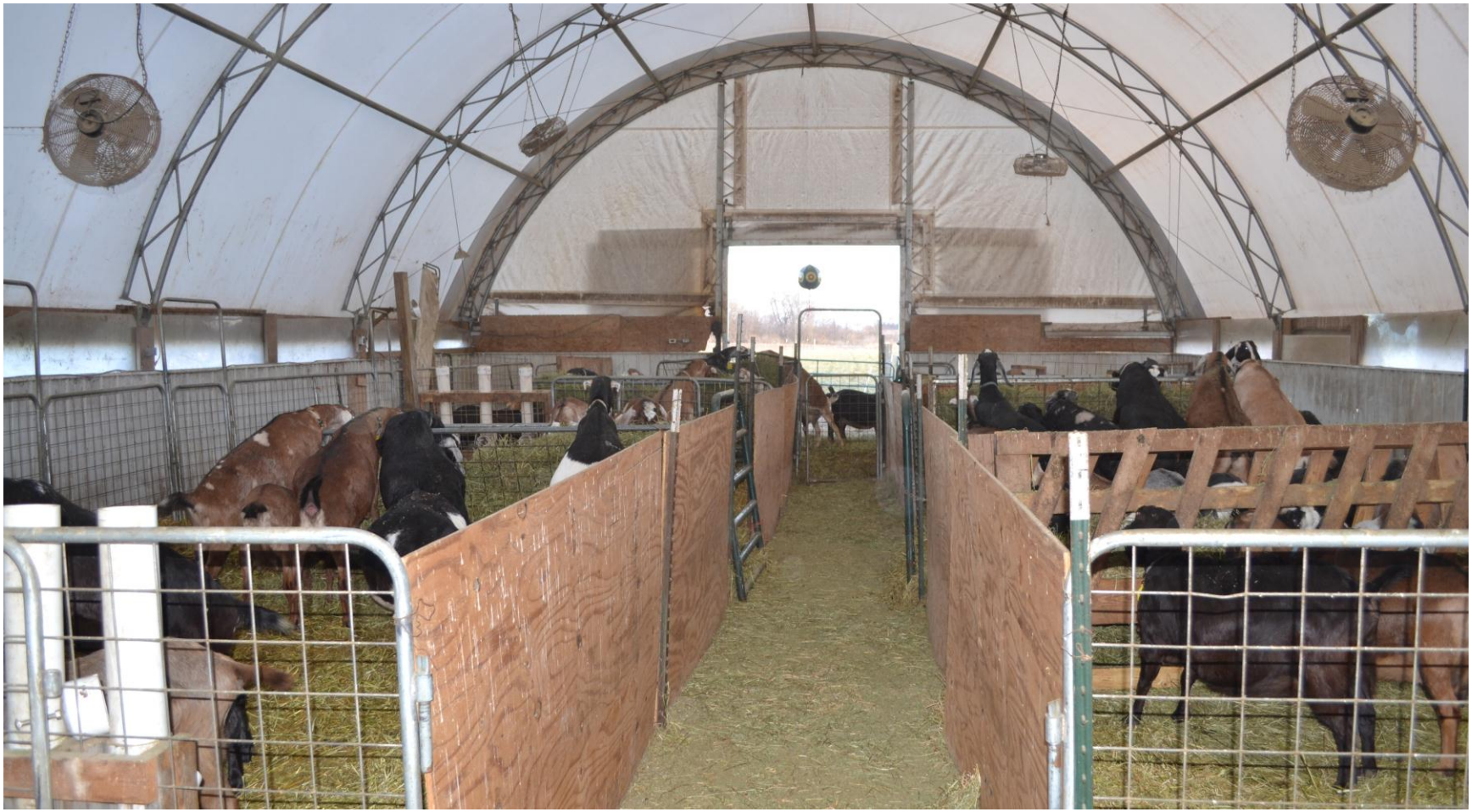
They’ll be back!



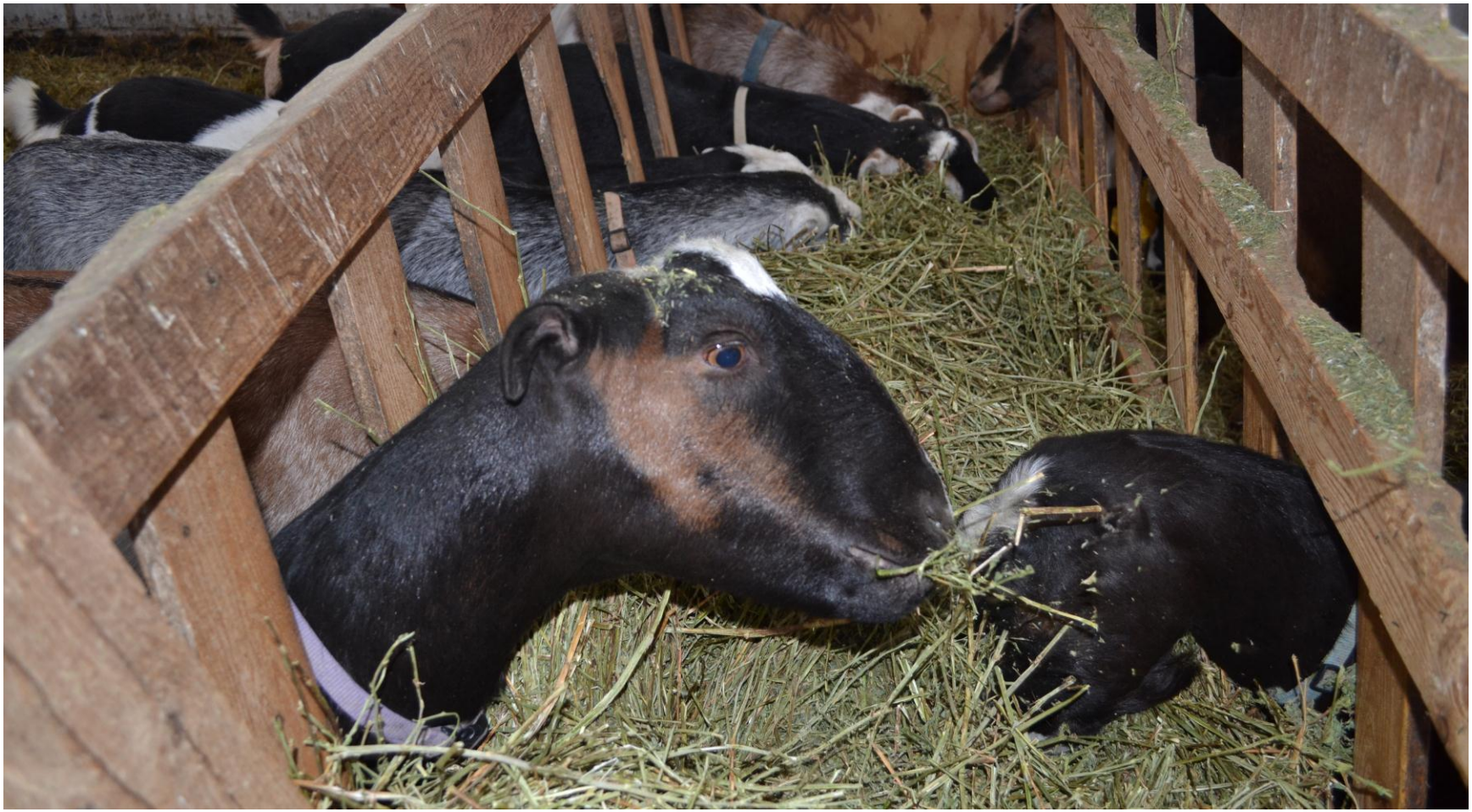
Permanent understory

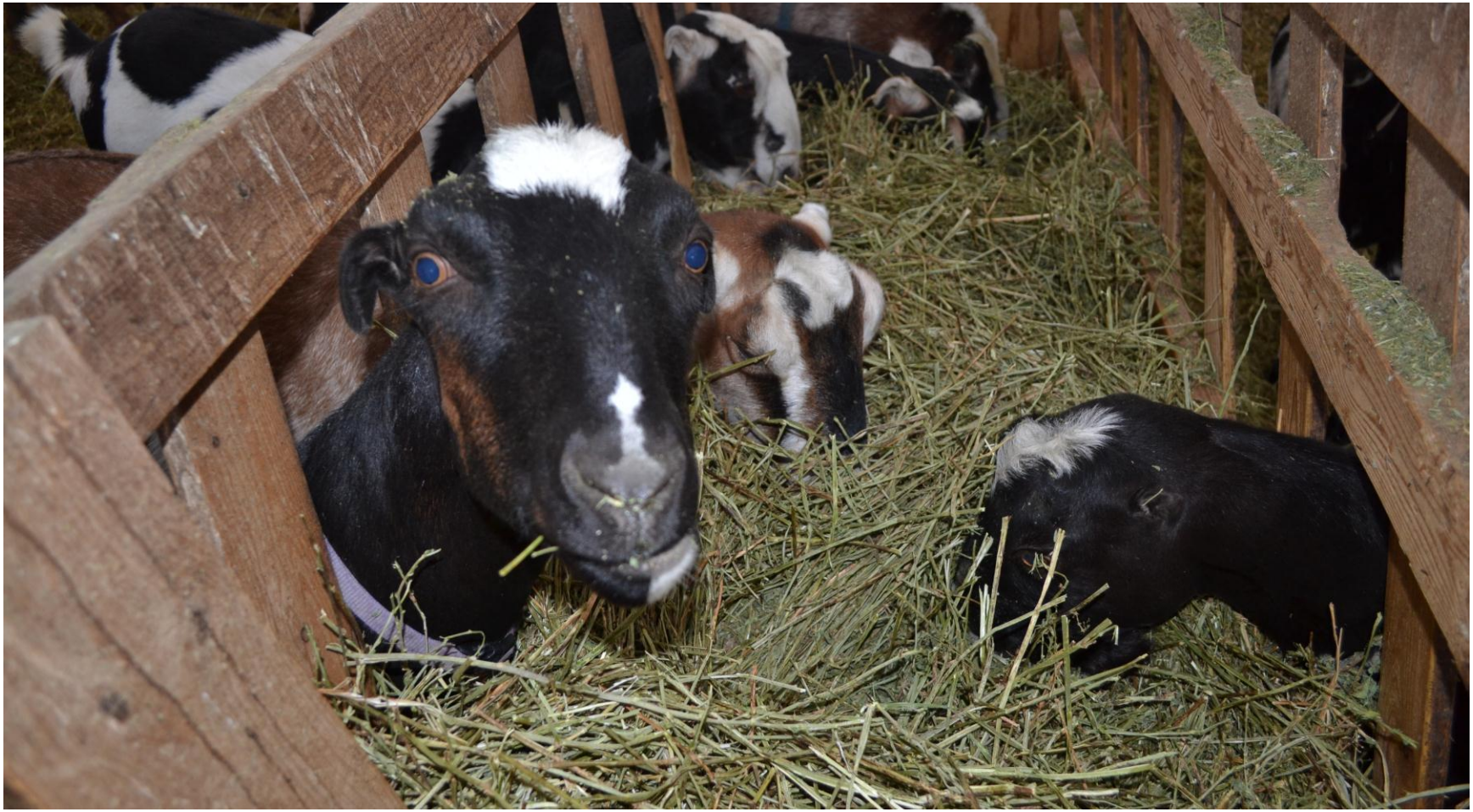


Barn, open to outside



Heads buried, mouths full!





Properties of successful organic agricultural systems

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- Resilient to pest damage
- Products healthy to humans
- Diverse subsystems in time and space
- Efficient nutrient, carbon, and water use
- Complements societal dynamics

NOT “Input substitution”

- Don’t just add manure instead of synthetic/inorganic fertilizer
- Don’t just substitute “natural” for “synthetic”
-

About a systems approach

- Major system: soil organic matter
- Integrated pest management
- Mimic nature, which takes care of itself

Benefits

- Minimize energy use
- Increase diversity, biological and economic

System

- Nutrients: maximize recycling and retention
- Mimic nature: create a system as real as nature
- Weeds
- Insects
- Disease

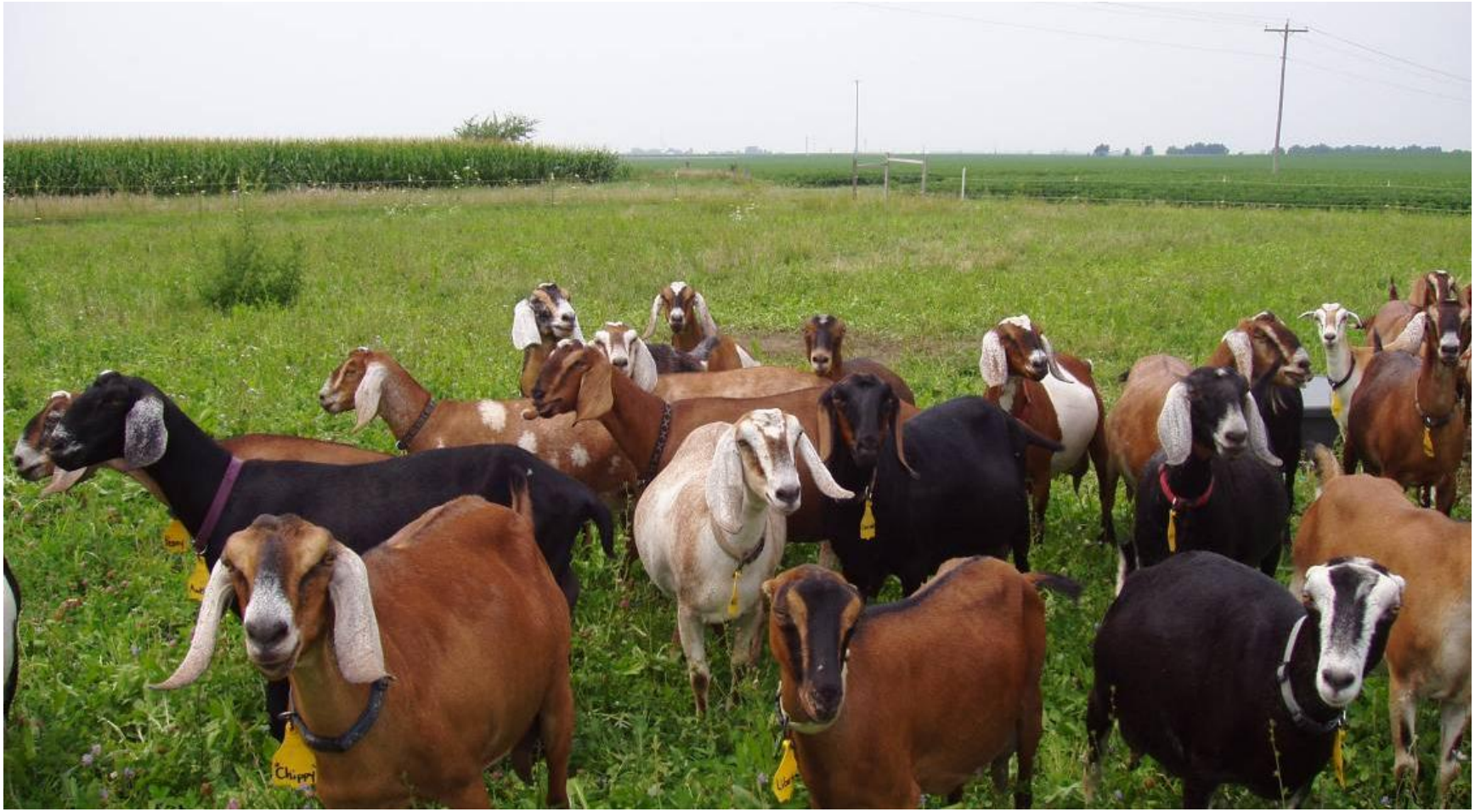
Integrated soil management

- Build soil organic matter
- Plant and animal nutrition
- Water balance – infiltration and stabilization
- Disease suppression
- Insect and other pest control

Rodale

- Reaction against synthetic world
- Natural products break down, require little input to create

Pastured dairy goats



Mulches – to protect soil and biology

Garden bed of Austrian peas

Renee Hunt, Program Director, Ohio Ecological Food and Farm Association - 2013

- "(George) Siemon and Organic Valley have developed
  - a successful business model that
  - rewards organic farmers,
  - keeps families farming the land,
  - protects the environment,
  - invests in the future, and
  - meets the growing consumer demand for safe, transparently-produced food."