

A low-angle photograph of a lush green spelt field under a bright blue sky with scattered white clouds. The spelt stalks are tall and pointed, filling the foreground and middle ground.

ORGANIC SPELT PRODUCTION

**VERMONT GRAIN GROWERS
CONFERENCE 2019**

**JOEL STEIGMAN
SMALL VALLEY MILLING
HALIFAX, PA**

SMALL VALLEY MILLING HISTORY PAST TO PRESENT (1996-TODAY)



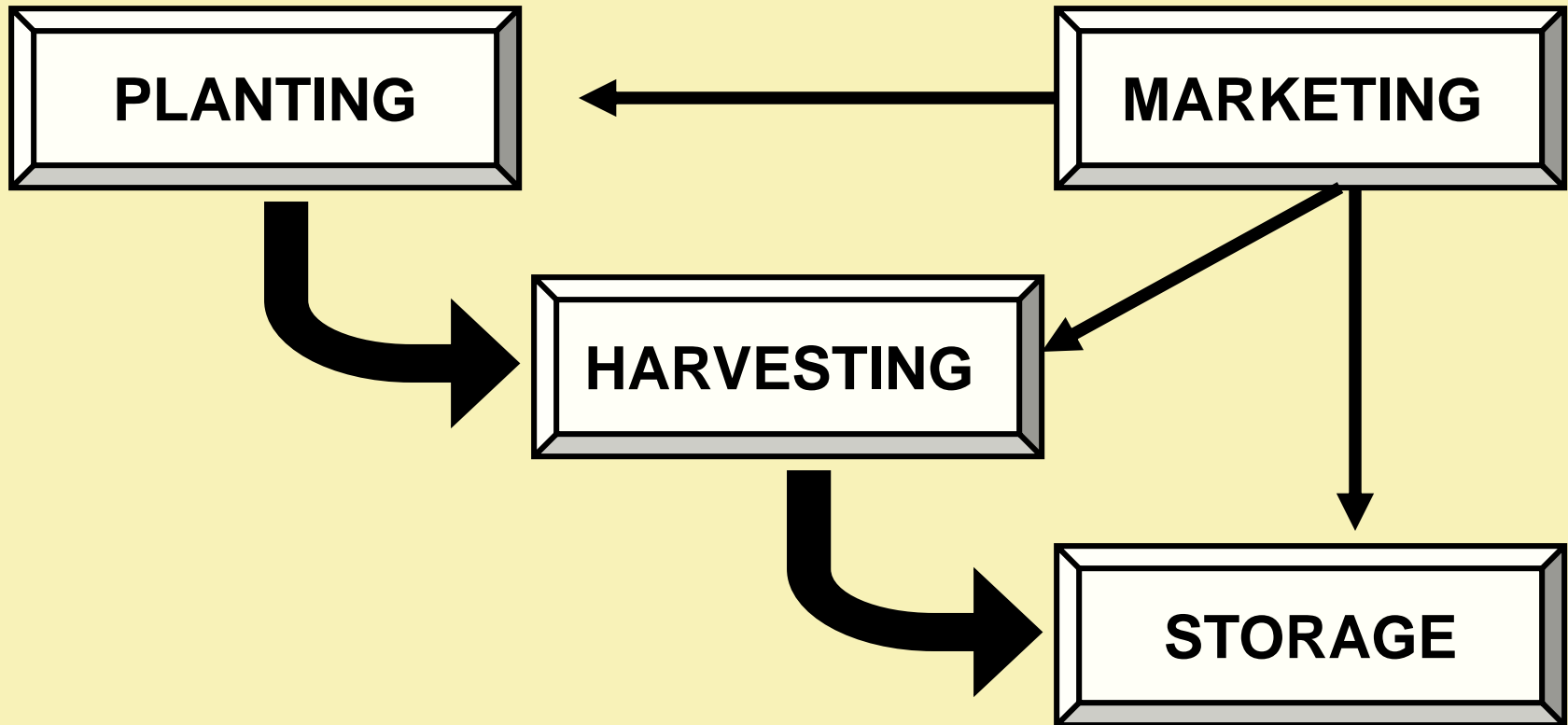
HISTORY OF ANCIENT GRAINS



- **Grains are members of the grass family**
- **Many ancient wheats are hulled**
 - **Einkorn, Emmer, Spelt**
- **Spelt development**
- **Spelt varieties with unique attributes**



ORGANIC CEREAL GRAIN PRODUCTION



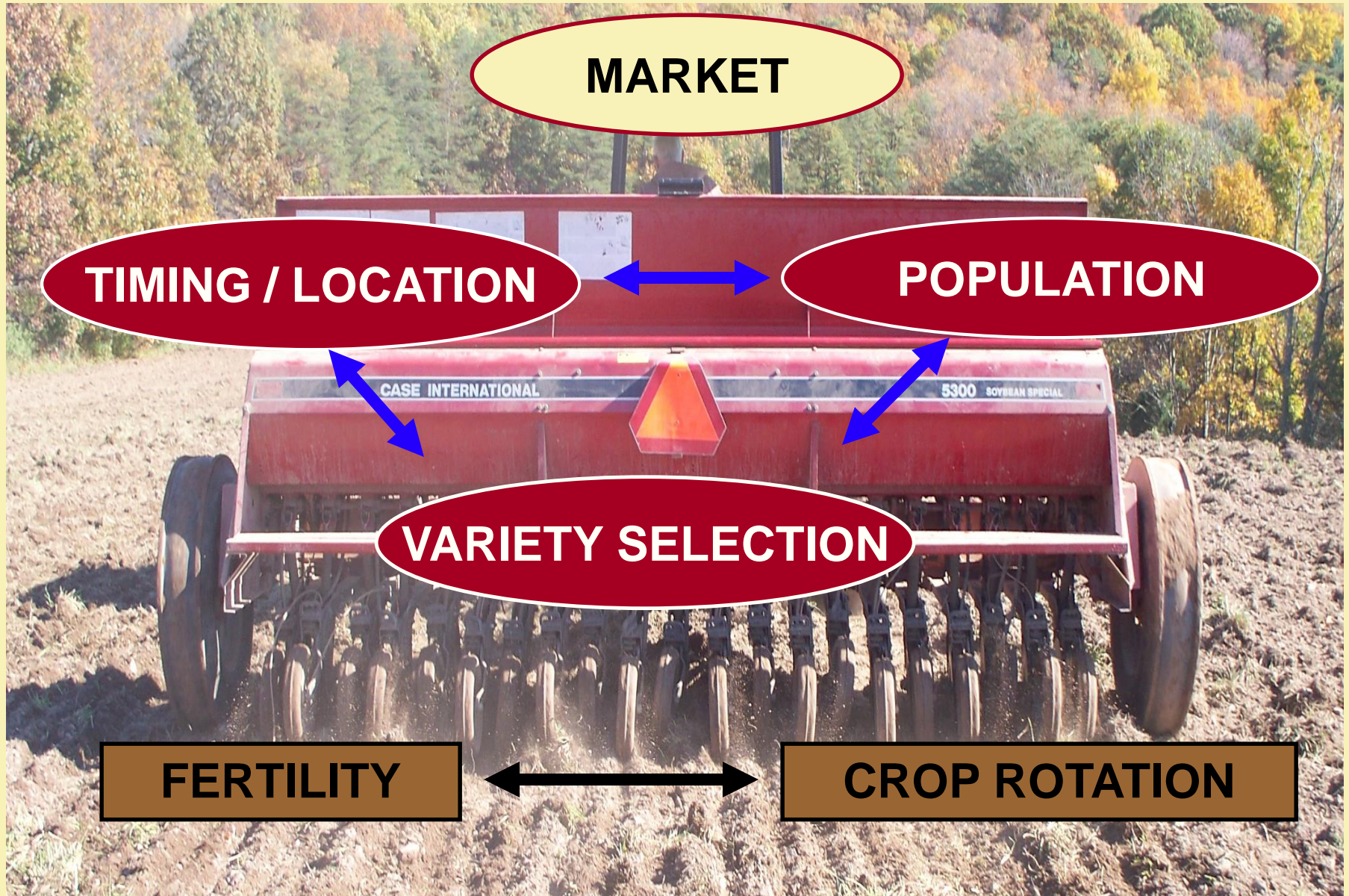
PLANTING

Key factors that affect planting

- Typically time constrained
- Weather variable
- Concerns with growing season length



PLANTING



GROWTH PROGRESSION

COVER CROP ?

FROST SEEDING

**TIMING WITH
CEREAL CROP**



LATE MARCH



EARLY MAY

EARLY SPRING

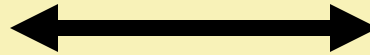
Diagnose and triage conditions early



HARVESTING

MARKET

**COMBINE
ADJUSTMENT**



GRAIN QUALITY

TIMELY HARVEST

MOISTURE



HARVESTING

FOOD GRADE MARKET

**COMBINE
ADJUSTMENT**

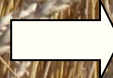


GRAIN QUALITY

TEST WEIGHT

MOISTURE

FORIGN MATTER



**GARLIC, VETCH
COCKLE, ROCKS
WEEDS**

VOMITOXIN

DAMAGED GRAIN

STORAGE

CLEAN BINS

SPRAY WITH EVERGREEN

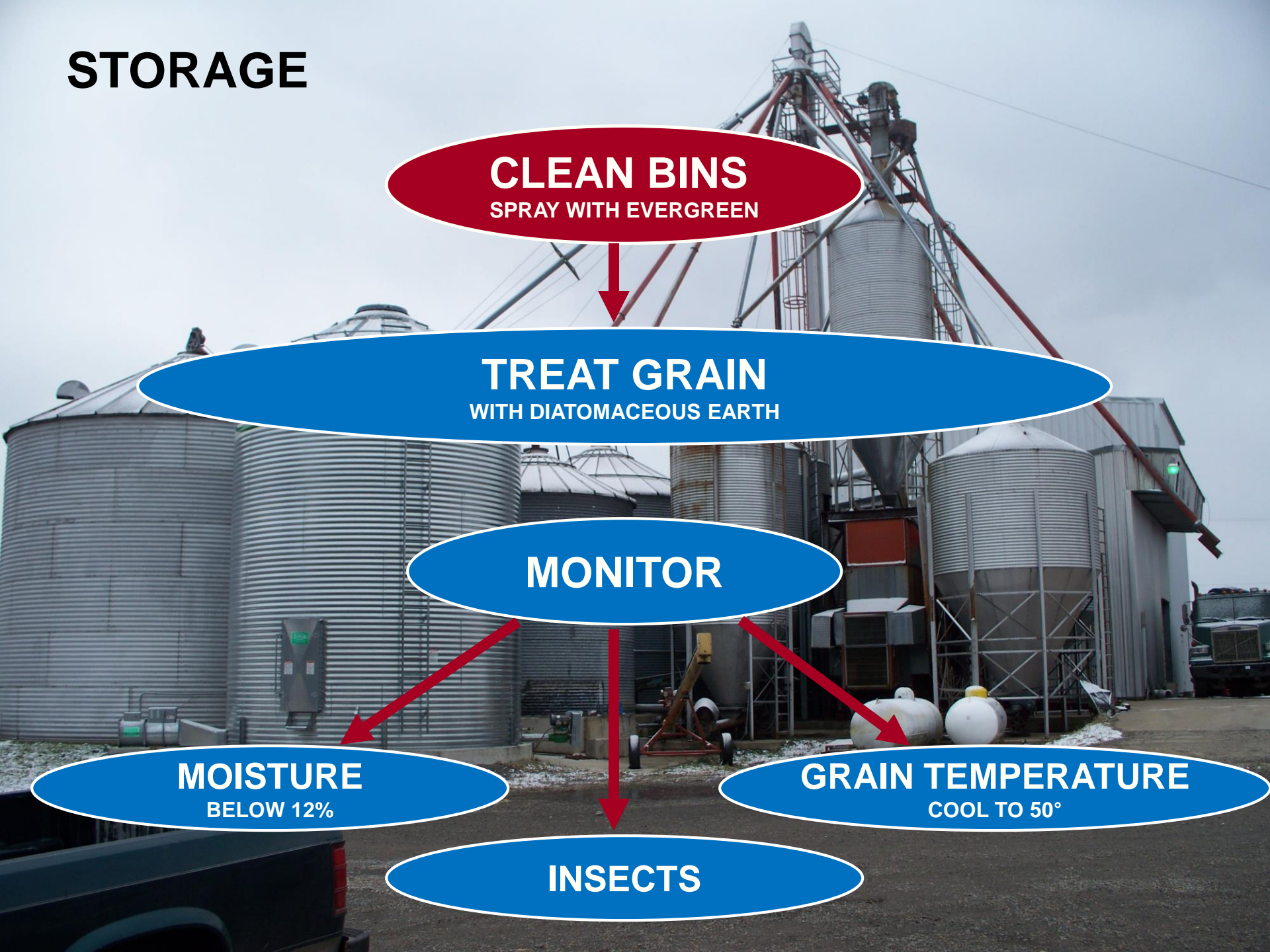
TREAT GRAIN
WITH DIATOMACEOUS EARTH

MONITOR

MOISTURE
BELOW 12%

GRAIN TEMPERATURE
COOL TO 50°

INSECTS



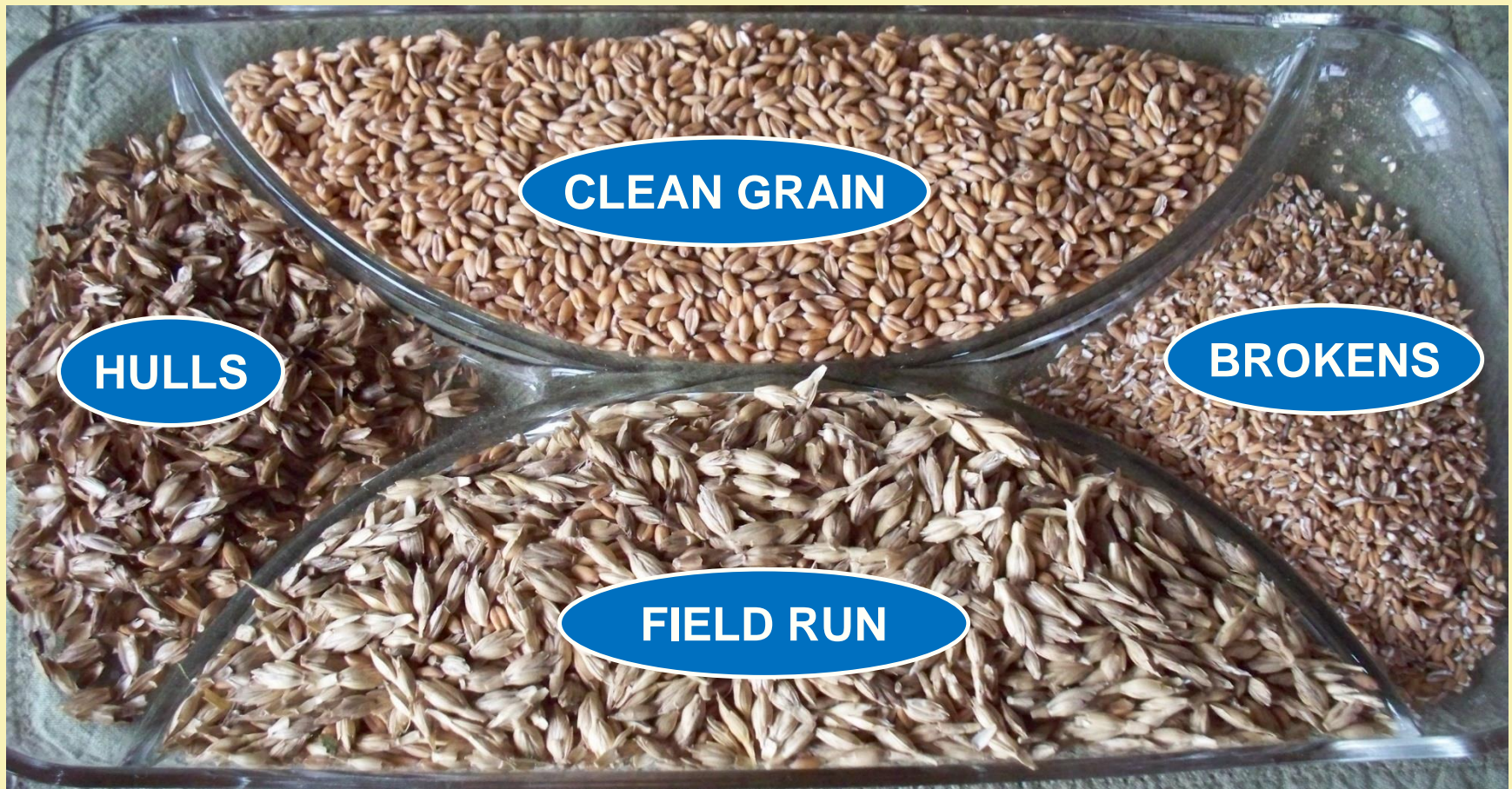
STORAGE

- Storage for field grain only, not flour
- Fan size and burner correlate to size of bin
- Essential to monitor and maintain optimal conditions



PROCESSING / DEHULLING

- When working with hulled grains, you inherently have more waste
- Waste drives energy usage and extended processing time, which translates to higher production costs and higher market value



PROCESSING / DEHULLING EQUIPMENT



Dehulling – The process of removing hulls from the field run

- **Types of dehulling equipment**
 - Oat dehuller
 - Codema dehuller



GRAIN CLEANING EQUIPMENT



Cleaning – process of separating waste from finished product

Waste includes:

- **Broken**s
- **Foreign matter** (weed seeds, rocks)
- **Hulls**



MILLING PROCESS



Stone Mill

used for whole flour



Hammer Mill

used for whole flour



Roll Stands

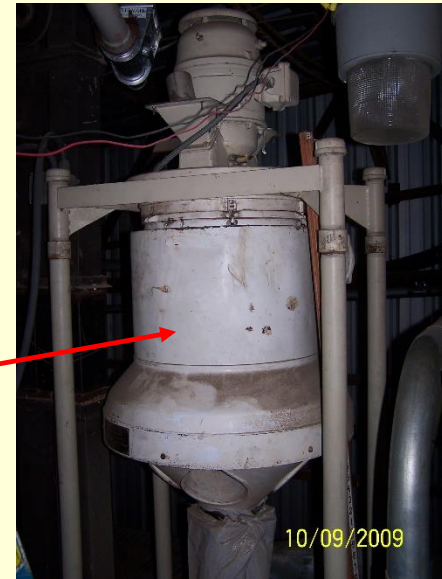
grinds white flour

MILLING PROCESS CONTINUED



Sifter – separates flour as released from the kernel

Bran dusters



Entolater – kills insects and larva

Vacuum packing machine for kernels, overpacked with CO2



PACKAGING LABELING SHIPMENT



OVERVIEW



QUESTIONS?