



# **ORGANIC SPELT PRODUCTION**

**VERMONT GRAIN GROWERS  
CONFERENCE 2019**

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

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



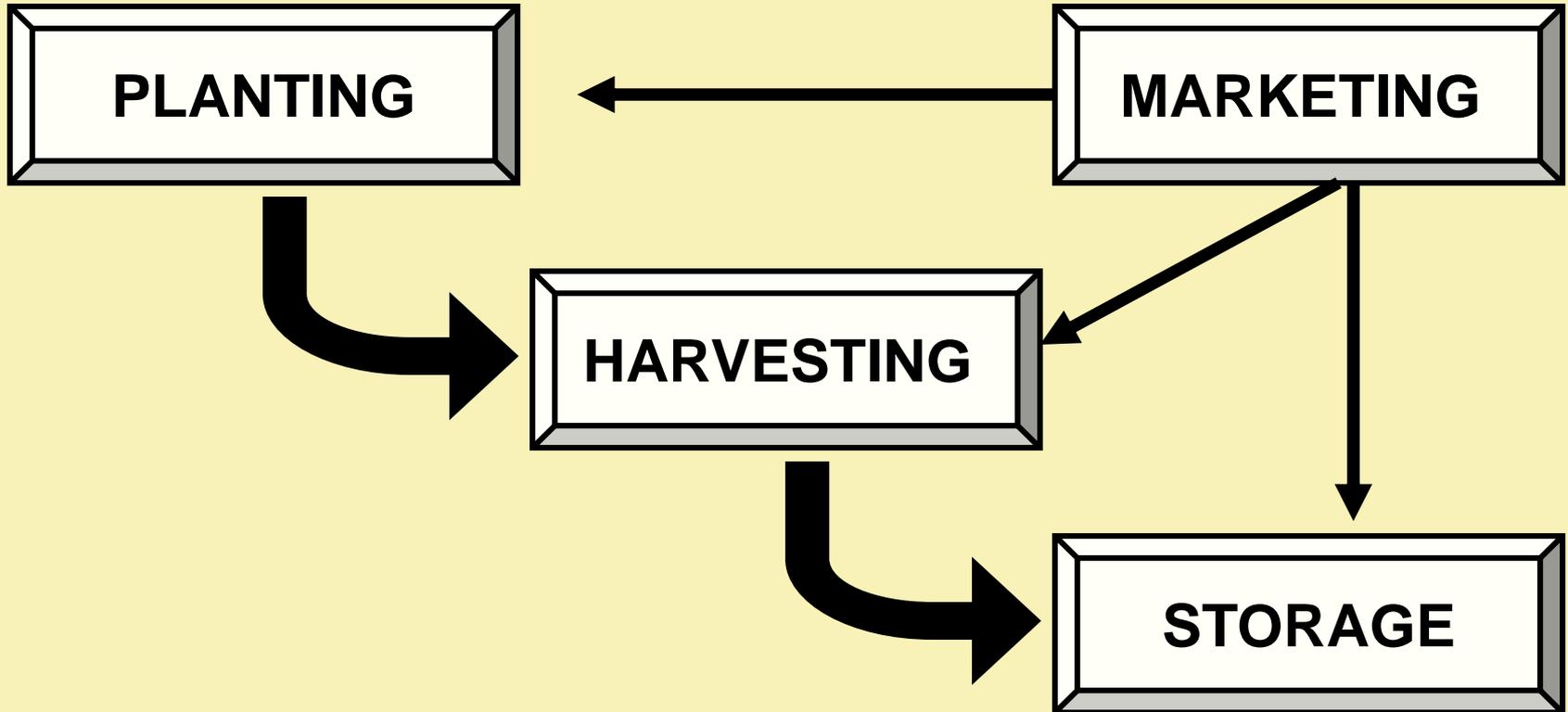
# HISTORY OF ANCIENT GRAINS



- **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



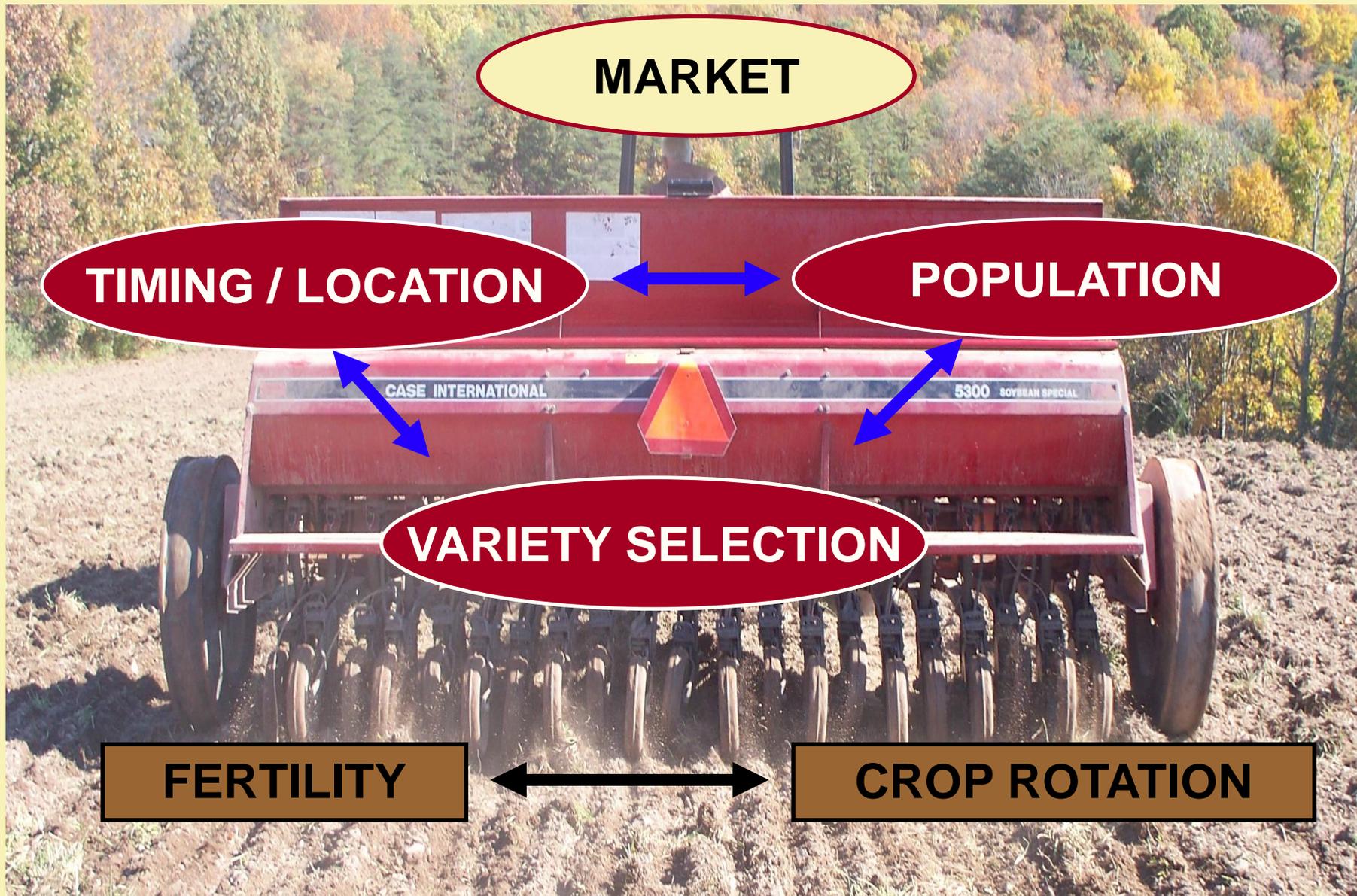
# PLANTING

## 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**

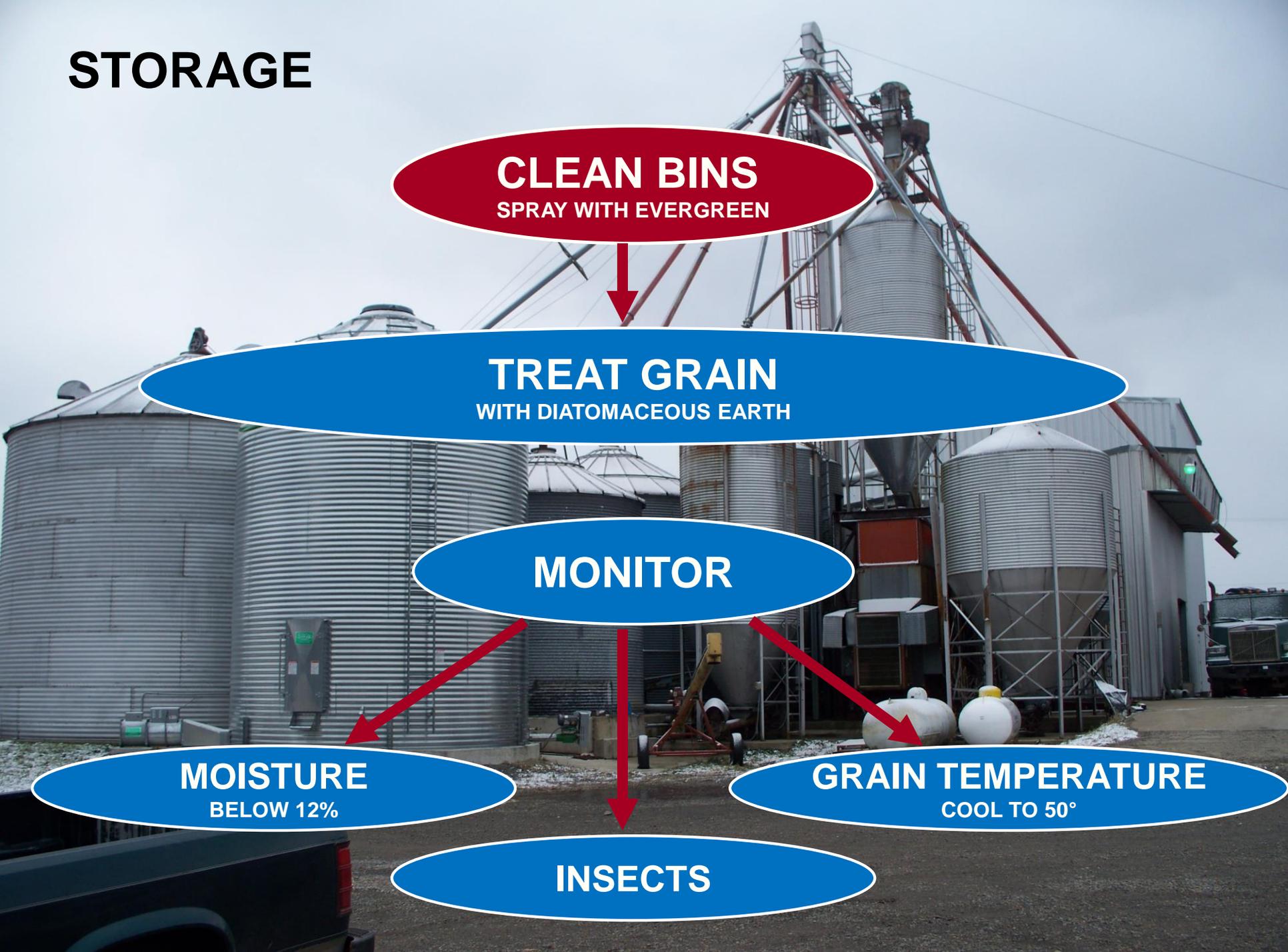
**MOISTURE**

BELOW 12%

**GRAIN TEMPERATURE**

COOL TO 50°

**INSECTS**



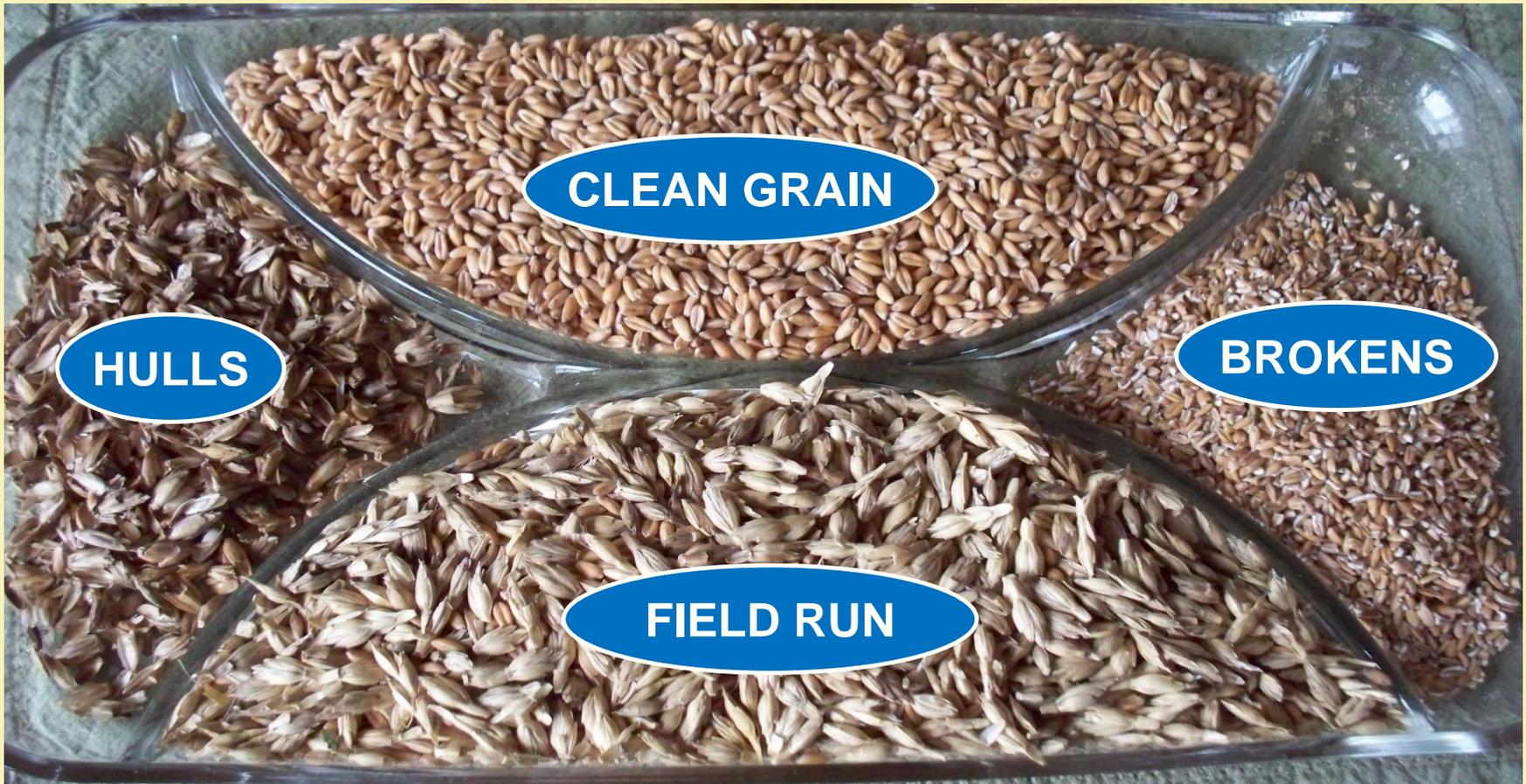
# STORAGE

- 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:**

- **Brokens**
- **Foreign matter (weed seeds, rocks)**
- **Hulls**



# MILLING PROCESS



**Stone Mill**  
used for whole flour



**Hammer Mill**  
used for whole flour



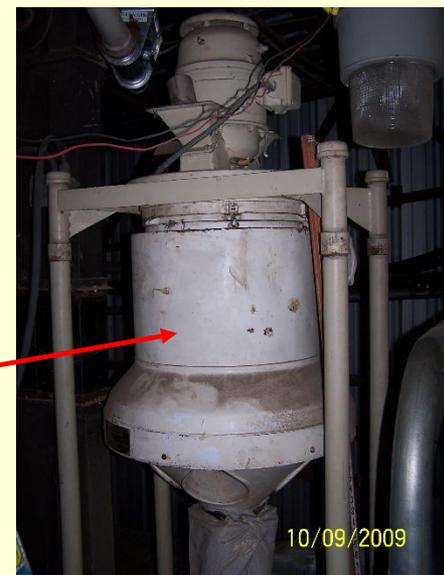
**Roll Stands**  
grinds white flour

# 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?**