

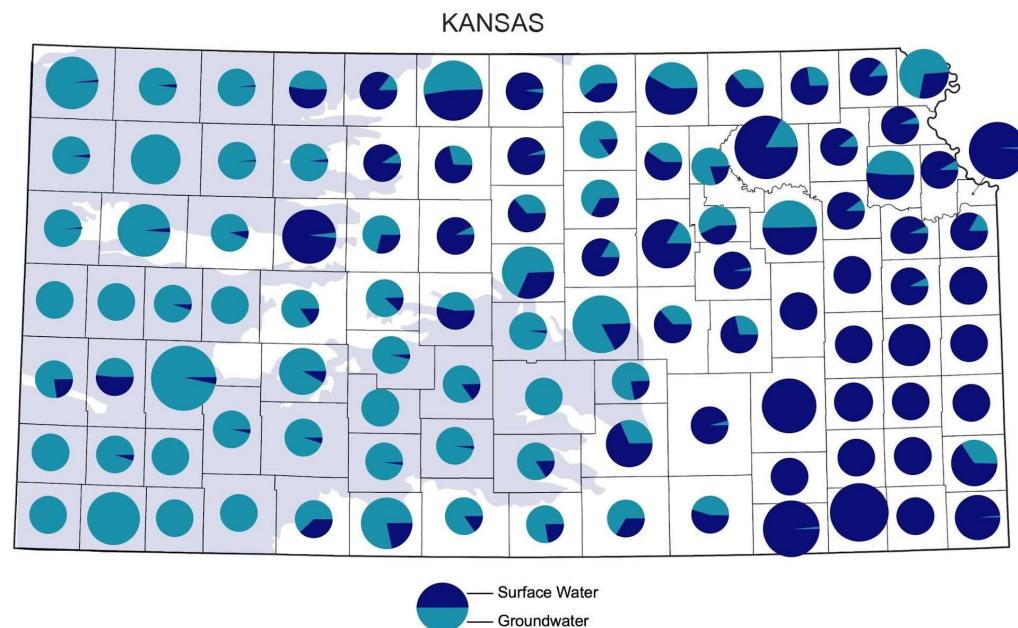
1

Current Events

This recent Kansas map shows the water use in each county and the source of that water.

What is the name of the groundwater source that many Western Kansas wells pull from?

(write out in words on your answer form)



Current Events

This herbicide is not currently labeled for application on growing soybeans (although it has been in the past).

What is the active ingredient of this herbicide?

(write out in words on your answer form)



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Current Events

Deficiencies of this macronutrient are becoming more common each year due to a reduction in acid rain with less coal burning in the United States.

Which nutrient is most likely deficient in these corn plants?

(write out the word on your answer form)



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Plant Structures

This sunflower has dropped a yellow substance on its leaf. Which plant structure **produced** this substance?

- A) Ovary
- B) Petal
- C) Pistil
- D) Stamen
- E) Stem



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Plant Structures

Name the specific structure indicated on this plant.
(write out in words on your answer form)

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Plant Structures

Name the specific structure indicated on this plant.
(write out in words on your answer form)

Plant Structures

What is the **leaf arrangement** shown on this plant?

- A) Opposite
- B) Alternate
- C) Sessile
- D) Whorled
- E) Rosette

Plant Structures

What type of modified stem is pictured here?

- A) Stolon
- B) Crown
- C) Rhizome
- D) Tuber
- E) Taproot



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Crop Development

What is the **development stage** of this corn plant?
(list as the letter and number)

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Crop Development

What is the **development stage** of this soybean plant?
(list as the letter and number)

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Crop Development

What is the development stage of this cotton square?
(write the descriptive term)

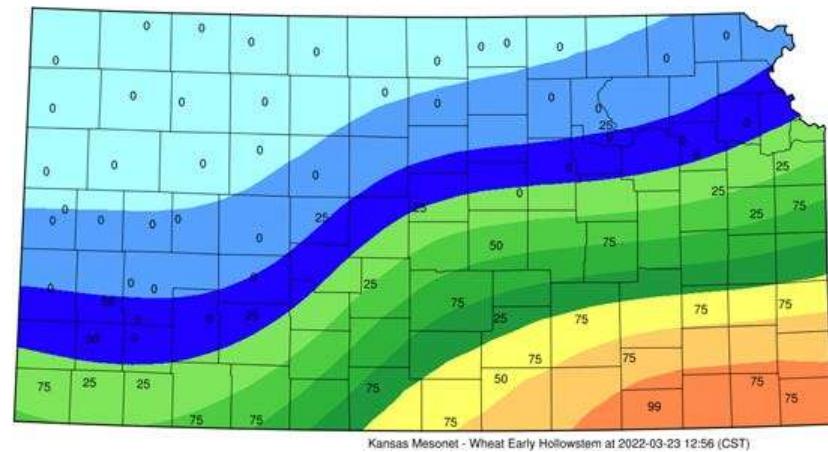


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Crop Development

This map shows the Kansas Mesonet weather data for probability of **first hollow stem** across the state in mid-March.

Higher numbers indicate that **first hollow stem** has likely occurred.



Which crop is this map used for?
(*write out in words on your answer form*)

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Soil Amendments

Which type of crops would benefit from the presence of this substance – either as a seed treatment or already in the soil?

- A) Cereal grasses
- B) Brassicas
- C) Warm season perennials
- D) Legumes
- E) Cool season annuals

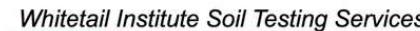


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Soil Amendments

Which **amendment** should be added to the soil to help with the problem highlighted on this soil test report?

- A) Urea fertilizer
- B) Rhizobia inoculum
- C) Elemental sulfur fertilizer
- D) Gypsum
- E) Ag lime

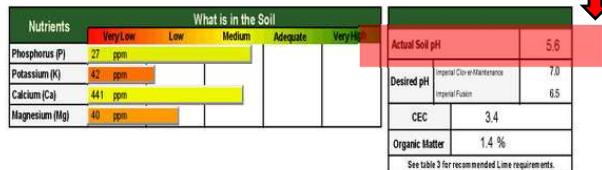


239 Whitetail Trail, Pintlala, Alabama 36042 (334) 281-3006 Fax (334) 286-9723



Client : ** Copy To **	Grower : Whitetail Institute Pintaila AL 36043	Report No.: 21-XXX-XXX Cust No.: XXXXX Date Printed: 03/02/2021 Page : 1 of 4
	Date Received : 03/01/2021	Lab Number : 25644

Sample Id : Brothers Field



If your wildlife plot is over one acre you may want to purchase fertilizer from your local farm center/fertilizer/chemical dealer.

Refer to Table 1 for recommendations for each nutrient of pure product. If using banned fertilizer refer to Table 2 for application amounts.

Fertilizer to Apply for Bulk Application					
If one acre or greater applying LBS/Acre (See table below.)			If less than one acre applying LBS/1000sq ft (See table below.)		
Forage : Imperial Clover-Maintenance		LBS/ACRE	Forage : Imperial Clover-Maintenance		LBS/1000sq ft
Lime	Nitrogen	Phosphate	Potash	Magnesium	
3125	0	60	120	15	
Forage : Imperial Fusion		LBS/ACRE	Forage : Imperial Fusion		LBS/1000sq ft
Lime	Nitrogen	Phosphate	Potash	Magnesium	
1875	30	60	120	15	
43	0.7	1.4	2.8	0.3	

To determine the best and most cost effective fertilizer for your plots, check with your local farm co-op, feed and fertilizer store or call the Whitetail Institute at (800) 688-3030 ext 1.

These recommendations are calculated to give you optimum production for one year.

When planting perennials a maintenance application should be made approximately one year after your initial planting date. The amount of fertilizer required can be precisely determined with an annual soil test.

Without a soil test visit <http://www.whitetailinstitute.com/info/planting/> or call the Whitetail Institute for general fertilizer and maintenance recommendations.

Maintenance recommendations.

Comments:

Imperial Clover-Maintenance

- If zero nitrogen fertilizer is not available, use a fertilizer with the lowest nitrogen percentage possible

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Nutrient Management

Which of the fertilizers below should I apply if my corn plants look like this?

- A) MAP
- B) Urea
- C) Anhydrous ammonia
- D) Potash (potassium chloride)
- E) Ag lime



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Nutrient Management

Which **nutrient** listed below is most likely deficient in this wheat plant?

- A) Nitrogen
- B) Phosphorus
- C) Potassium
- D) Iron
- E) Calcium



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Nutrient Management

HELP!

Some fertilizer spilled in my shop and I don't know what it is anymore.

What is the name of this fertilizer carrier that I found on the floor?

(write out in words on your answer form)

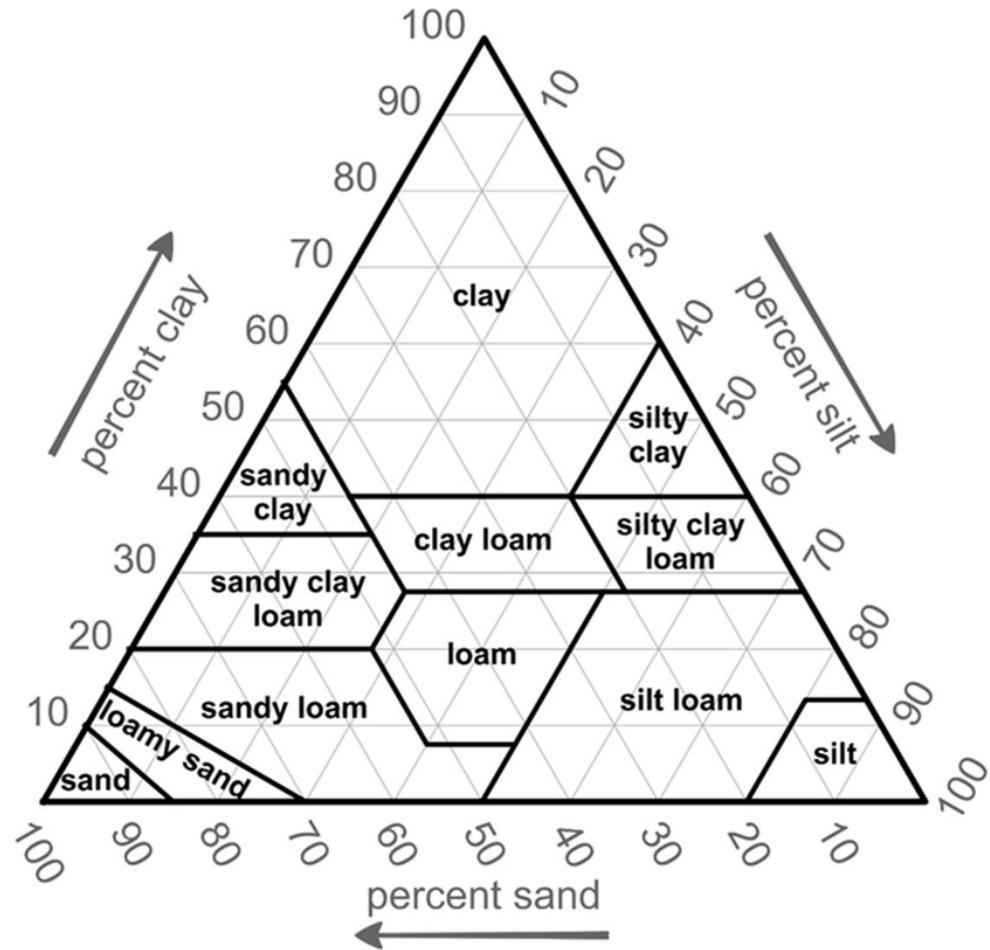
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Soil Texture

What is the **texture** of a soil that contains:

- 25% sand
- 30% clay
- 45% silt

(write out in words on your answer form)



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Soil Texture

Feel the soil samples provided.

Which sample contains the **greatest % sand?**

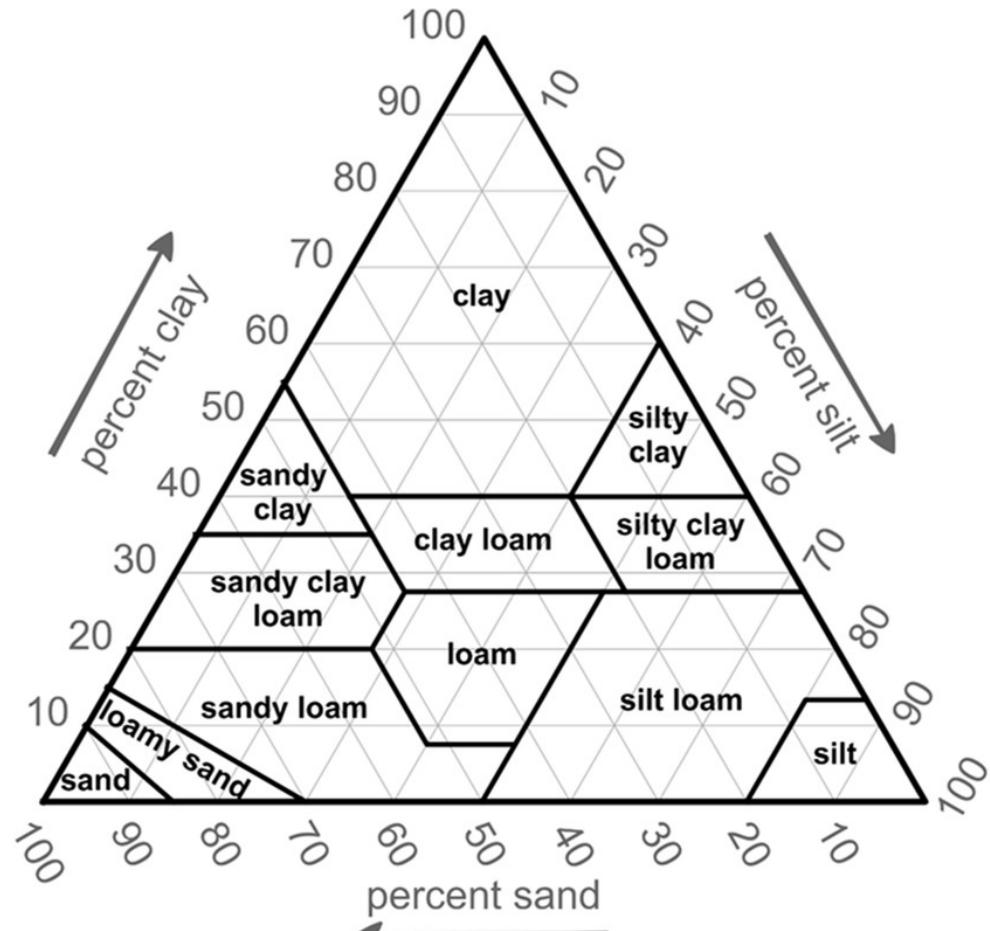
(answer with the letter on the sample)

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Soil Texture

Based on the texture triangle, what is the **minimum % of clay** that a soil can contain and still be classified as simply “clay”?

- A) 40%
- B) 45%
- C) 55%
- D) 60%
- E) 100%



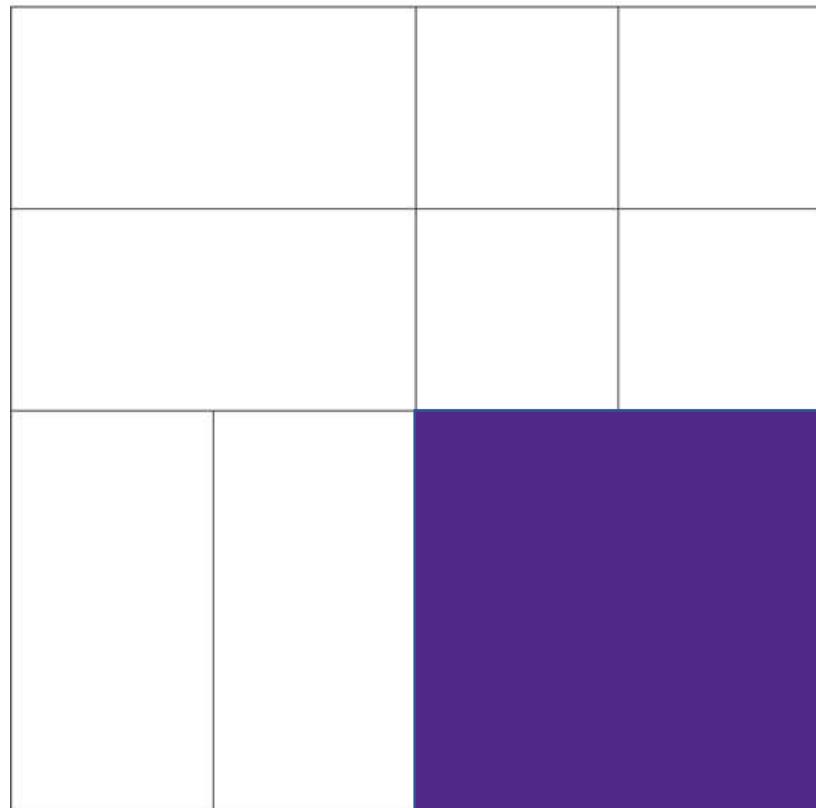
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Land Survey

How many **acres** are in the purple area of this section?

- A) 640 acres
- B) 400 acres
- C) 160 acres
- D) 80 acres
- E) 25 acres

1 Section



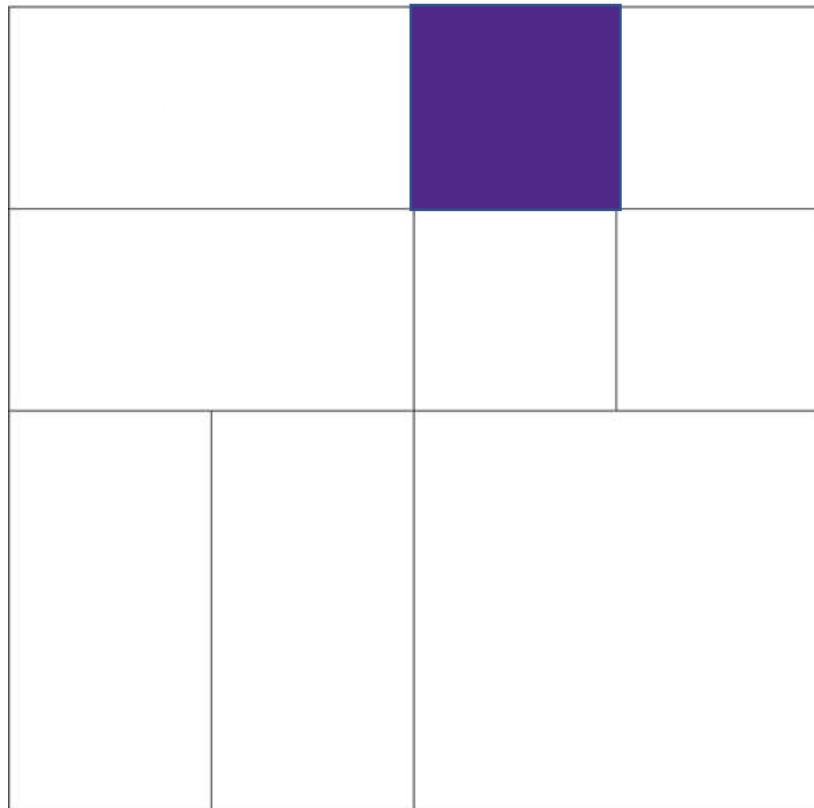
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Land Survey

How would the purple area of this section be properly described?

- A) N $\frac{1}{2}$ of the NE $\frac{1}{4}$
- B) NW $\frac{1}{4}$ of the NE $\frac{1}{4}$
- C) N $\frac{1}{4}$ of the N $\frac{1}{2}$
- D) NE $\frac{1}{4}$ of the NW $\frac{1}{4}$
- E) W $\frac{1}{4}$ of the NE $\frac{1}{2}$

1 Section



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Herbicides

What is the REI of this product?

(write the number with units on your answer form)

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Herbicides

What do the four nozzles pictured here have in common?

- A) All are used as sprinkler nozzles on pivot irrigation systems.
- B) All are used exclusively with John Deere sprayers.
- C) All have a spray angle of 80°.
- D) All deliver the same rate of spray (8 gallons per acre).
- E) These four nozzles have nothing in common.



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Plant Classification

Which of these plants is a monocot?

(answer with the letter by the correct plant)

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Plant Classification

Which of these seeds is not planted around this time of year (May to June timeframe) in Kansas?

(answer with the letter by the seed pan)

Plant Classification

True Crime: Agronomy Edition

Which of the weeds below, based on their classification profiles, is most likely to compete with a corn crop and have limited herbicide options?

- A) Horseweed
- B) Shattercane
- C) Palmer amaranth
- D) Kochia
- E) Jointed goatgrass

Victim: Corn



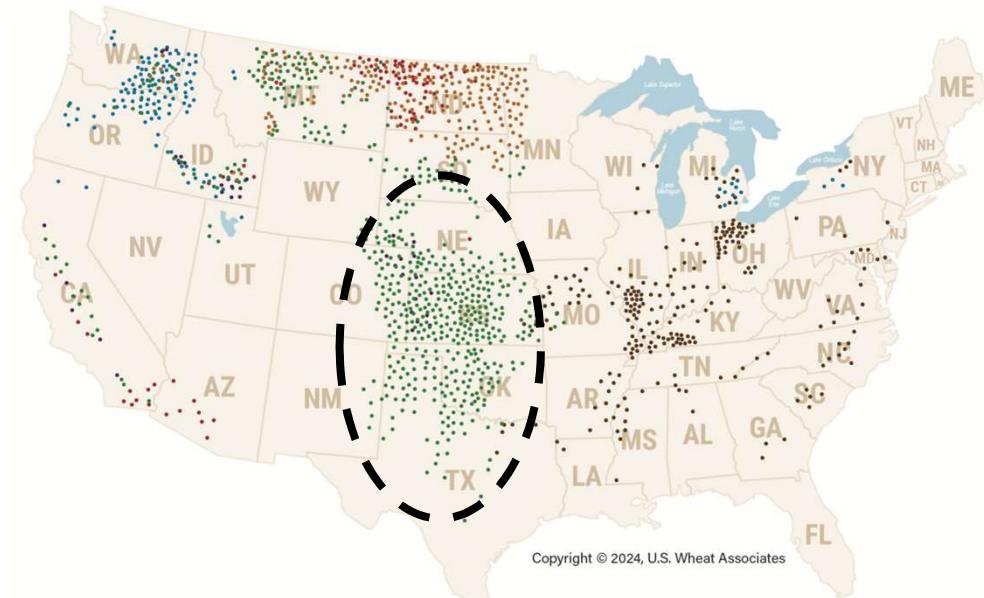
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Crop Classification

The different colored dots on this map represent different classes of wheat and where they are grown.

Which class do the green dots (circled on map) in Kansas and the surrounding states represent?

- A) Soft white
- B) Hard white
- C) Hard red spring
- D) Hard red winter
- E) Soft red winter
- F) Durum



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Crop Classification

All of these crop plants, while different from each other, can be harvested for the same end purpose.

What is that **shared use**?

- A) Grain
- B) Fuel
- C) Fiber
- D) Protein
- E) Feed (forage/fodder)

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Product Identification

What agronomic purpose would this item be used for?

- A) Calibrating drills
- B) Monitoring insect populations
- C) Cleaning out combines
- D) Signaling wind direction
- E) Personal protection equipment (PPE) when applying pesticides



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Product Identification

This farmer is adding the white substance to their seed in order to...

- A) Add a starter fertilizer
- B) Decrease the pH of the root zone
- C) Reduce insect pressure
- D) Kill disease-causing pathogens living in the soil
- E) Improve seed flow through the planter



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Crop Management

Which **general management practice** is shown here?
(write out in words on your answer form)



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Crop Management

Which **general management practice** is shown here?
(write out in words on your answer form)



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Crop Management

Which of the management practices and tasks listed below can the *general type* of equipment shown here **NOT** help to accomplish?

- A) Broadcast seeding
- B) Scouting for pests
- C) Crop health assessment
- D) Fertilizer application
- E) Pesticide application
- F) All of these can be accomplished by the general type of equipment shown

Grain and Seed Quality

What is the official **grade** of a yellow corn sample if it has:

- 53 lbs/bushel Test Weight
- 0.1% Heat Damage
- 5.0% Total Damage
- 2.0% BCFM
- 9 cocklebur seeds

- A) U.S. No. 1 Yellow Corn
- B) U.S. No. 2 Yellow Corn
- C) U.S. No. 3 Yellow Corn
- D) U.S. No. 4 Yellow Corn
- E) U.S. No. 5 Yellow Corn
- F) U.S. Sample Grade Yellow Corn

Grade	Minimum test weight per bushel (pounds)	Maximum limits of:		
		Damaged kernels		Broken corn and foreign material (percent)
		Heat damaged kernels (percent)	Total (percent)	
U.S. No. 1	56.0	0.1	3.0	2.0
U.S. No. 2	54.0	0.2	5.0	3.0
U.S. No. 3	52.0	0.5	7.0	4.0
U.S. No. 4	49.0	1.0	10.0	5.0
U.S. No. 5	46.0	3.0	15.0	7.0

U.S. Sample Grade
 U.S. Sample grade is corn that:
 (a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or
 (b) Contains stones with an aggregate weight in excess of 0.1 percent of the sample weight, 2 or more pieces of glass, 3 or more *crotalaria* seeds (*Crotalaria spp.*), 2 or more castor beans (*Ricinus communis L.*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cockleburs (*Xanthium spp.*), or similar seeds singly or in combination, or animal filth in excess of 0.20 percent in 1,000 grams; or
 (c) Has a musty, sour, or commercially objectionable foreign odor; or
 (d) Is heating or otherwise of distinctly low quality

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Grain and Seed Quality

What is the official grade of a yellow soybean sample if it has:

- 56 lbs/bushel Test Weight
- 0.1% Heat Damage
- 2.5% Total Damage
- 1.5% FM
- 12% Splits
- Total of: 7 animal filth, 1 castor bean, 2 unknown foreign substances

- A) U.S. No. 1 Yellow Soybeans
- B) U.S. No. 2 Yellow Soybeans
- C) U.S. No. 3 Yellow Soybeans
- D) U.S. No. 4 Yellow Soybeans
- E) U.S. No. 5 Yellow Soybeans
- F) U.S. Sample Grade Yellow Soybeans

Grades Grade Requirements				
Grading factors	Grades U. S. Nos.			
	1	2	3	4
Maximum percent limits of				
Damaged kernels:				
Heat (part of total)	0.2	0.5	1.0	3.0
Total	2.0	3.0	5.0	8.0
Foreign material	1.0	2.0	3.0	5.0
Splits	10.0	20.0	30.0	40.0
Maximum count limits of				
Other materials:				
Animal filth	9	9	9	9
Castor beans	1	1	1	1
Crotalaria seeds	2	2	2	2
Glass	0	0	0	0
Stones ¹	3	3	3	3
Unknown foreign substance	3	3	3	3
Total ²	10	10	10	10
U.S. Sample grade are soybeans that:				
(a) Do not meet the requirements for U.S. Nos. 1, 2, 3, or 4; or				
(b) Have a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or				
(c) Are heating or otherwise of distinctly low quality.				
¹ In addition to the maximum count limit, stones must exceed 0.1 percent of the sample weight.				
² Includes any combination of animal filth, castor beans, crotalaria seeds, glass, stones, and unknown foreign substances. The weight of stones is not applicable for total other material.				

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Feed Ingredients

Which of the **crops** listed was most likely used to create the pile of feed shown in the picture below?

- A) Soybean
- B) Cotton
- C) Sunflowers
- D) Corn
- E) Alfalfa



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Feed Ingredients

“Free gossypol” is an important factor to test when including this product in your feed rations. For example, greater than 350 ppm (0.035%) free gossypol in feed is an unacceptable and toxic level for young calves and lambs.

The sample shown here tested high in gossypol.

Which crop was this feedstuff made from?

(write out in words on your answer form)

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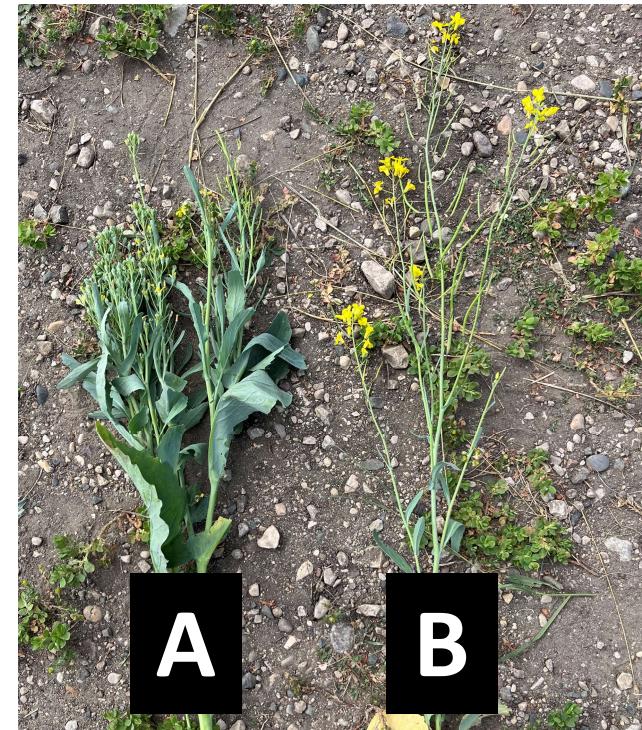
Pest Management

Canola plant A is suffering from a disease called “aster yellows”.

Aster yellows causes excess growth and disfigured flowers on canola plants. This disease is spread from plant to plant by leafhoppers.

What is the leafhopper considered to be in this disease cycle?

- A) Regulator
- B) Host
- C) Vector
- D) Pathogen



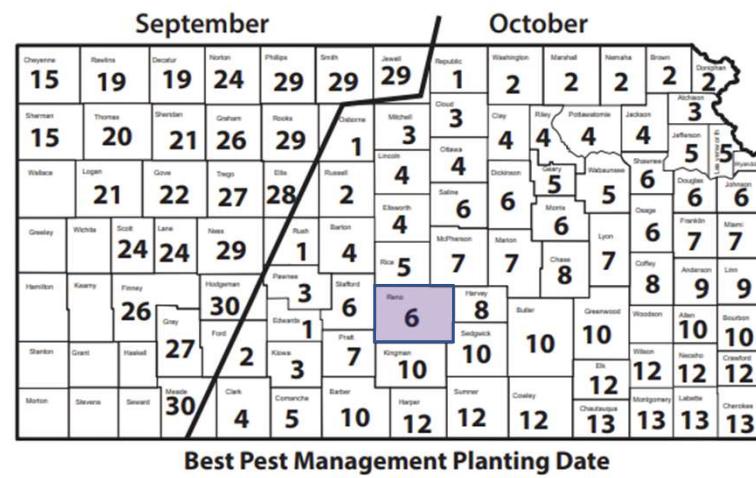
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Pest Management

This map from K-State Research and Extension shows Hessian fly-free dates across the state of Kansas.

Based on this map, which of the dates below would be the earliest I could plant wheat in Reno County (purple) while actively reducing Hessian fly problems?

- A) September 15
- B) September 30
- C) October 2
- D) October 7
- E) October 14



These dates were established several years ago. Although fields may still be infested with **Hessian fly** when planted after these dates if the weather is mild, later planting dates generally reduce problems from **Hessian fly**, **aphids**, **wheat curl mites**, and many diseases.

Agronomy CDE

Agronomic Applications

Spring 2025