This weed is

**VEGETATIVE WEED ID**
CROP GROWTH AND DEVELOPMENT

The wheat plants shown here are currently at which of the following growth stages:

A) joining flag leaf emergence  
B) flag leaf stage  
C) boot stage  
D) heading  
E) flowering (anthesis)  
F) physiological maturity

2. 
NUTRIENT DEFICIENCY

The purple coloration on the leaves of this corn plant are typical of a deficiency of:

A) Nitrogen
B) Phosphorus
C) Potassium
D) Iron
E) Sulfur
CROP GROWTH AND DEVELOPMENT

4. Shown above are three warm season Kansas crops just emerging. Assume we have a freeze tonight that kills most of the tissue down to just above the soil surface, but not below ground. Based on their seedling emergence pattern and early growth habit, which of the crop shown would have the best chance of regrowing and producing a normal crop?

A) Cotton
B) Corn
C) Soybean
D) All of them should recover equally well
E) None of them will be able to recover
CROP GROWTH AND DEVELOPMENT

4. Shown above are three warm season Kansas crops just emerging. Assume we have a freeze tonight that kills most of the tissue down to just above the soil surface, but not below ground. Based on their seedling emergence pattern and early growth habit, which of the crop shown would have the best chance of regrowing and producing a normal crop?
Plant Structure - Dicot Leaves

5. The proper description of the leaf type an arrangement for this plant is:

- (A) Simple leaf, alternate arrangement
- (B) Simple leaf, opposite arrangement
- (C) Palmately compound leaf, alternate arrangement
- (D) Palmately compound leaf, opposite arrangement
- (E) Pinnately compound leaf, opposite arrangement
- (F) Pinnately compound leaf, alternate arrangement
CROP PRODUCTS and CROP QUALITY

6. Which of the above hay samples would likely have the highest percent protein?

ANSWER: A, B, C, or D
CROP PRODUCTS and CROP QUALITY

6. Which of the above hay samples would likely have the highest percent protein?

   ANSWER: A, B, C, or D
7. This soybean disease is:

A) pod and stem rot
B) bacterial blight
C) bean pod mottle virus
D) rust
E) Phytophthora root rot
F) gray leaf spot
7. This soybean disease is:

A) pod and stem rot  
B) bacterial blight  
C) bean pod mottle virus  
D) rust  
E) Phytophthora root rot  
F) gray leaf spot
8. Which is of the above fertilizers would be a source of phosphorus?

ANSWER: A, B, C, or D
FERTILIZER

8. Which of the above fertilizers would be a source of phosphorus?

ANSWER: A, B, C, or D
PESTICIDE APPLICATION

9. Shown above are four flat fan sprayer nozzle tips. At standard 40 psi pressure, which of them would have the lowest nozzle delivery rate?

ANSWER: Write the color or number from the correct nozzle tip.
PESTICIDE APPLICATION

9. Shown above are four flat fan sprayer nozzle tips. At standard 40 psi pressure, which of them would have the lowest nozzle delivery rate?

ANSWER: Write the color or number from the correct nozzle tip.
This piece of equipment is a (an)
10. This piece of equipment is a (an)
VEGETATIVE WEED ID

11. This weed is _______________
The correct legal description of the area labeled \textit{R3W} and the appropriate number of acres in

\begin{align*}
\text{A)} & \quad \text{SW} \ \frac{1}{4} \ \text{of NW} \ \frac{1}{4} & = 40 \ \text{acres} \\
\text{B)} & \quad \text{N} \ \frac{1}{2} \ \text{of W} \ \frac{1}{2} & = 40 \ \text{acres} \\
\text{C)} & \quad \text{W} \ \frac{1}{2} \ \text{of SW} \ \frac{1}{4} & = 80 \ \text{acres} \\
\text{D)} & \quad \text{NW} \ \frac{1}{4} \ \text{of SW} \ \frac{1}{4} & = 80 \ \text{acres} \\
\text{E)} & \quad \text{SW} \ \frac{1}{4} \ \text{of SE} \ \frac{1}{4} & = 40 \ \text{acres} \\
\text{F)} & \quad \text{NW} \ \frac{1}{4} \ \text{of SW} \ \frac{1}{4} & = 40 \ \text{acres}
\end{align*}
The correct legal description of the area labeled "C" in section 10 of T2N R3W is:

\[
\begin{align*}
&\text{N}\,\frac{3}{4}\,\text{NW} = 40 \text{ acres} \\
&\text{SW}\,\frac{1}{4}\,\text{NW} = 40 \text{ acres}
\end{align*}
\]
CROP GROWTH AND DEVELOPMENT

13. The growth stage of this corn plant is:

A) V 2
B) V 3
C) V 4
D) V 5
E) VT
F) R 1
14. This wheat disease is

A) loose smut of wheat
B) barley yellow dwarf virus
C) wheat streak mosaic virus
C) wheat scab
D) stem rust of wheat
E) leaf rust of wheat
This wheat disease is

**Crop Disease**

- (E) Leaf rust of wheat
- (D) Stem rust of wheat
- (C) Wheat scab
- (B) Wheat streak mosaic virus
- (A) Barley yellow dwarf virus
- (G) Loose smut of wheat
15. This weed is
Table 4. Suggested statewide soybean planting rates.

<table>
<thead>
<tr>
<th>Row width inches</th>
<th>Seeds/linear foot</th>
<th>Plants/linear foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>10.0</td>
<td>8.0</td>
</tr>
<tr>
<td>20</td>
<td>6.6</td>
<td>5.3</td>
</tr>
<tr>
<td>10</td>
<td>3.3</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Assuming 90% percent germination and 80% percent emergence.

USE THE KANSAS CROP PLANTING GUIDE

16. The recommended plant population for dryland grain sorghum in the 26-32 inch rainfall zone of Kansas is ___________ plants per acre.
Grain Sorghum Plant and Seed Spacings

The recommended plant population and row spacings for grain sorghum depend on conditions (Table 3). A dryland grain sorghum producer who farms in the 26-32 inch rainfall zone may use a lower plant population than those shown in Table 3. Higher rainfall zones or producers using irrigation systems may choose to use row spacings shown in Table 4. The number of plants per square foot or plants within an inch of the row will vary with rainfall and soil type but will generally be greater in the lower rainfall areas.

Table 3. Plant and seed spacings of grain sorghum.

<table>
<thead>
<tr>
<th>Row width inches</th>
<th>Seed/linear inch</th>
<th>Plants/linear foot</th>
<th>Average stand #/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>40</td>
<td>14,000</td>
<td>32,000</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
<td>21,000</td>
<td>42,000</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td>14,000</td>
<td>28,000</td>
</tr>
<tr>
<td>30</td>
<td>60</td>
<td>19,000</td>
<td>38,000</td>
</tr>
<tr>
<td>36</td>
<td>40</td>
<td>11,000</td>
<td>22,000</td>
</tr>
<tr>
<td>36</td>
<td>60</td>
<td>16,000</td>
<td>32,000</td>
</tr>
</tbody>
</table>

Soybean Planting Rates

The suggested soybean planting rates and final stand for different row spacings are provided in Table 4. If a producer wants to keep the population the same while decreasing row spacing, it is necessary to reduce the number of seeds or plants per foot of row. For soybeans planted on sandy soils in central and eastern Kansas or on dryland conditions in western Kansas, the plant population may be reduced by 25 percent. Also, the population may be advanced slightly for late plantings to encourage rapid closing of the rows.

Table 4. Suggested statewide soybean planting rates.

<table>
<thead>
<tr>
<th>Row width inches</th>
<th>Seeds/linear inch</th>
<th>Plants/linear foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>100</td>
<td>5.3</td>
</tr>
<tr>
<td>20</td>
<td>150</td>
<td>7.5</td>
</tr>
<tr>
<td>10</td>
<td>200</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Soybean Planting Rates

<table>
<thead>
<tr>
<th>Soybean planting rate</th>
<th>Final stand (plants/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000</td>
<td>14,500</td>
</tr>
<tr>
<td>15,000</td>
<td>7,250</td>
</tr>
<tr>
<td>10,000</td>
<td>4,830</td>
</tr>
</tbody>
</table>

USE THE KANSAS CROP PLANTING GUIDE

The recommended plant population for dryland grain sorghum in the 26-32 inch rainfall zone of Kansas is [number] plants per acre.
CROP STRUCTURE - SEEDLINGS

17. The structure marked by the white pin is called the:

A) Mesocotyl
B) Cotyledon
C) Hypocotyl
D) Coleoptile
E) Radicle
The structure marked by the white pin is called the:

A) Mesocotyl
B) Cotyledon
C) Hypocotyl
D) Colleopile
E) Radicle

Crop Structure - Seedlings
18. The signal word on this herbicide label is:
of generation of production for three seed classes is:

A. Certified
B. Foundation
C. Registered

19.

SEED BAG LABELS
19. Shown are three standard tags that may be found on regulated by state crop improvement associations of generation of production for these three seed checks:

A. Certified $\rightarrow$ Registered $\rightarrow$ Foundation
B. Foundation $\rightarrow$ Certified $\rightarrow$ Registered
C. Registered $\rightarrow$ Certified $\rightarrow$ Foundation
D. Certified $\rightarrow$ Foundation $\rightarrow$ Registered
E. Foundation $\rightarrow$ Registered $\rightarrow$ Certified
F. Registered $\rightarrow$ Foundation $\rightarrow$ Certified
20. This insect is

A) corn earworm
B) green cloverworm
C) corn rootworm
D) fall armyworm
E) black cutworm
F) European corn borer
Crop Insect

This insect is...
21. This weed is ________________
22. This piece of equipment is a(n) _______. 
This piece of equipment is an "equipment."
23. This insect is:

A) alfalfa weevil  D) chinch bug
B) lady beetle      E) aphid
C) blister beetle   F) lacewing
This insect is:

A) lady beetle
B) blister beetle
C) chinch bug
D) aphid
E) lacewing
F) alfalfa weevil
CROP PRODUCTS and CROP QUALITY

24. Which of the above wheat samples would typically be used to make the food product displayed?

ANSWER: A, B, C, or D
25. The correct soil textural class for a soil with 30% clay, 60% silt, and 10% sand is a ____________________________.
25. The correct soil textural class for a soil with 30% clay, 60% silt, and 10% sand is a...
26. This corn disease is:

A) gray leaf spot  
B) Northern corn leaf blight  
C) Gibberella stalk rot  
D) ear rot  
E) corn smut  
F) blue eye mold
This corn disease is:

A) Grey leaf spot
B) Northern corn leaf blight
C) Gibberella stalk rot
D) Ear rot
E) Corn smut
F) Blue eye mold

CROP DISEASE
27. What crop is the above feed ingredient made from?

A) Corn
B) Wheat
C) Alfalfa
D) Soybean
E) Cotton
27. What crop is the above feed ingredient made from?

A) Corn  B) Wheat  C) Alfalfa  D) Soybean  Cotton

CROP PRODUCTS
28. This insect is:

A) blister beetle  
B) bean leaf beetle  
C) green cloverworm  
D) chinch bug  
E) alfalfa weevil  
F) stinkbug
E) alfalfa weevil
D) chinch bug
F) green cloverworm
B) bean leaf beetle
A) blister beetle

This insect is:

CROP INSECT
SOIL AMENDMENTS

29. Which of the above materials is ag lime used to raise the pH of acidic soils?

ANSWER: A, B, C, or D
Which of the above materials is a lime used to raise the pH of acidic soils?

**SOIL AMENDMENTS**

ANSWER: A, B, C, or D
PLANT STRUCTURE – DICOT FLOWERS

30. How many SEPARLS does each flower have? ________________

(You may touch the flowers to count the sepals)