CROPS/AGRONOMY

PURPOSE
The State FFA Crops Career Development Event is designed to stimulate interest and study in economically important plants and seeds, and the weed and weed seeds that are commonly associated with these crops. The CDE should also help develop an appreciation and skills in identifying factors that influence crop and seed quality.

OBJECTIVES**
1. To demonstrate basic knowledge of crop and agronomic sciences.
2. To explore career opportunities, skills and proficiencies in the agronomy industry.
3. To determine the ability to identify agronomic:
   a. Crops
   b. Weeds
   c. Seeds
   d. Insects
   e. Diseases
   f. Plant nutrient deficiencies
   g. Plant disorders
   h. Crop grading and pricing
   i. Equipment
4. To evaluate a scenario and develop a crop management plan including crop selection, production and marketing.
5. To demonstrate understanding of sustainable agriculture and environmental stewardship through the use of integrated pest management and best management practices.

ELIGIBILITY
1. The student contestant must be a bona fide dues paying FFA member in good standing with the local chapter, state association and the National Organization at the time of his or her participation.
2. The student contestant, at the time of his or her participation, must be: (1) a high school student. A graduating senior is considered eligible to compete in state and national contests up to and including the first National FFA Convention following high school graduation. (2) Enrolled in at least one agriculture education course with a supervised experience program, the objective of which is the establishment in an agricultural occupation. **INCOMING FRESHMEN ARE INELIGIBLE TO PARTICIPATE, EXCEPT IN STATE LIVESTOCK WHERE THEY COMPETE FOR INDIVIDUAL AWARDS ONLY.**
3. If a member has competed in a National Event, they are no longer eligible to compete at the state level in any event in which they compete at nationals.

The winning team in this CDE will be eligible to represent the state in the National Agronomy Event held at the time of the National FFA Convention.

RULES AND REGULATIONS
1. A chartered FFA chapter may enter two teams in the Crops CDE, with one team designated as the official team. A team may consist of 5 eligible members. The score of the 3 high individuals will be used to determine the team score.
DIVISION OF THE CROPS CDE

1. **Even Years**

   A. Seed Analysis (2 samples)  
      15 min.  
      200 points
   B. Weed Identification (20 samples)  
      15 min.  
      200 points
   C. Crop Identification (20 samples)  
      15 min.  
      200 points
   D. Hay Judging (2 classes)  
      15 min.  
      180 points
   E. Silage Judging (2 classes)  
      15 min.  
      180 points
   F. Vegetable Judging (2 classes)  
      15 min.  
      180 points
   G. Fruit and Nut Judging (2 classes)  
      15 min.  
      190 points
   H. General Knowledge Test (40 questions)  
      30 min.  
      200 points

   **Total Points**  
   1530

2. **Odd Years**

   A. Seed Analysis (2 samples)  
      15 min.  
      200 points
   B. Weed Identification (20 samples)  
      15 min.  
      200 points
   C. Crop Identification (20 samples)  
      15 min.  
      200 points
   D. Hay Judging (2 classes)  
      15 min.  
      180 points
   E. Silage Judging (2 classes)  
      15 min.  
      180 points
   F. Range Plant Ident. (18 samples)  
      15 min.  
      180 points
   G. Grain Judging (2 classes) labeled  
      15 min.  
      200 points
   H. General Knowledge Test (40 questions)  
      30 min.  
      200 points

   **Total Points**  
   1540
DETAILS OF CDE DIVISION

A. Seed Analysis
1. Time - 15 minutes (two samples totaling 200 points)

2. The two samples will be selected from the following three crop areas: (a) Cereals - 25 gram samples (wheat, barley, oats); (b) Legumes - 5 gram samples (alfalfa, red clover, white clover); (c) Grasses - 2 gram samples (perennial ryegrass, orchardgrass, crested wheatgrass).

3. The contestant must provide common names on the base crop, other crop seeds, and weed seeds.

4. A contestant shall not name a seed as a contaminant unless there are more than three seeds of the contaminant present in the base sample (this is to account for seed which may occur incidentally in the sample).

5. Scoring of the seed analysis shall be 100 points per sample as follows: 10 points for each base crop properly identified, other crop and weed contaminants up to 9 for a total of 100 points. No points are subtracted for improper identification.

6. Contaminants added to the base samples shall come from both the crop and weed identification lists; however, the following mixtures will not occur:

   a. Hard red and soft white wheat
   b. Six and two row barley
   c. Perennial ryegrass and tall fescue
   d. Alfalfa and red clover
   e. Alfalfa and sweet clover
   f. Red clover and sweet clover
   g. Crested wheatgrass and quackgrass
   h. Crested wheatgrass and orchardgrass
   i. White clover and ladino clover
   j. Timothy and velvetgrass
   k. Kentucky bluegrass and annual bluegrass
   l. Perennial ryegrass and annual ryegrass
   m. Creeping red fescue and crested wheatgrass

B. Weed Identification
1. Time - 15 minutes (200 points).

2. Twenty (20) samples will be selected and displayed for each CDE.

3. Contestants will identify each sample and place the appropriate sample number in front of the correct common name listed on the scorecard.

4. The plants exhibited must be in flower and/or fruiting stages unless otherwise specified. Seedling stages will not be allowed.

5. Each sample will be worth 10 points.

C. Crop Identification
1. Time - 15 minutes (200 points).

2. Twenty (20) samples will be selected and displayed for each CDE.

3. Contestants will identify each sample and place the appropriate sample number in front of the correct common name listed on the scorecard.

4. The plants exhibited must be in flower and/or fruiting stages unless otherwise specified. Seedling stages will not be allowed.

5. Each sample will be worth 10 points.

D. Hay Judging
1. Time - 15 minutes (two classes totaling 180 points).
2. Two classes consisting of four samples of hay will be selected and displayed. Each sample will have one or more factors that influence quality. The samples may be bale or flakes of baled hay. The two classes will be legume hay, grass hay, or other.

3. The contestant must place the four samples of hay based upon the following factors: maturity, leafiness, color, foreign material, and odor/condition.

4. Specimen evaluation will consist of one individual sample to be evaluated. Evaluation will be based upon the factors as listed on the appropriate scorecard.

5. 50 points will be allotted for correct placing of each class using the Hormel system. Eight (8) points will be allotted for determining the desirability of each factor for the designated samples, for a total of 40 points possible. Each class will then have a total value of 90 points.

E. Silage Judging

1. Time - 15 minutes (two classes totaling 180 points).

2. Two classes consisting of four samples of silage will be selected and displayed. Each sample will have one or more factors that influence quality. The two classes will be either legume, grass (including corn), or legume grass mixture.

3. The contestant must place the four samples of silage based upon the following factors: Maturity, color, foreign materials, odor/condition, moisture, and chop.

4. Specimen evaluation will consist of one individual sample to be evaluated. Evaluation will be based upon the factors as listed on the appropriate scorecard.

5. 50 points will be allotted for correct placing of each class using the Hormel system. Eight (8) points will be allotted for determining the desirability of each factor for the designated samples for a total of 40 points possible. Each class will then have a total value of 90 points.

F. Vegetable Judging

1. Time - 15 minutes (two classes totaling 180 points).

2. Each class will consist of four samples with four specimens to a sample that will be placed in accordance to their quality. At least one of the samples will be either potatoes or onions. The other class will be taken from the list of vegetables. The contestant must place the four samples of vegetables based upon color, maturity, size/shape/varietal trueness, uniformity, disease, mechanical damage, rot/spoilage/freezing, and foreign material/stem/leaves and insect/rodent damage.

3. Specimen evaluation will consist of one individual sample to be evaluated. Evaluation will be based upon the factors as listed on the appropriate scorecard.

4. All specimens within a class will consist of the same variety.

5. Scoring of a class shall be on the basis of 50 points for correct placing using the Hormel system. Five (5) points will be allotted for determining the desirability of each factor for the designated samples for a total of 40 points possible. Each class will then have a total of 90 points.

6. All samples will be placed in a position such that all qualities and conditions can be seen without turning them over.

G. Fruit and Nut Judging

1. Time - 15 minutes (two classes totaling 190 points).

2. Each class will consist of four samples with four specimens to a sample that will be placed in
accordance to their quality. Fruit and nut specimens to be judged will be selected from the following:

<table>
<thead>
<tr>
<th>Apples</th>
<th>Blackberries</th>
<th>Filberts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pears</td>
<td>Raspberries</td>
<td>Walnuts</td>
</tr>
<tr>
<td>Strawberries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The contestant will place the four samples of fruits or nuts based upon color, maturity, size/shape/varietal trueness, disease, mechanical damage, rot/spillage/freezing, foreign material/stem/leaves, insect/rodent damage and uniformity.

3. Specimen evaluation will consist of one individual sample to be evaluated. Evaluation will be based upon the factors as listed on the appropriate scorecard.

4. All specimens within a class will consist of the same variety.

5. Scoring of a class shall be on the basis of 50 points for correct placing using the Hormel system. Five (5) points will be allotted for determining the desirability of each factor for the designated samples for a total of 45 points possible. Each class will then have a total of 95 points.

6. All samples will be placed in a position that all qualities and conditions can be seen without turning them over.

7. Samples that are free of any defects shall be called good.

H. Range Plant Identification
1. Time - 15 minutes (180 points).

2. Eighteen (18) samples will be selected for each CDE from the list of range plants and weeds provided on page titled "Range Plant Identification List."

3. Contestants will identify each sample and place the appropriate sample number in front of the correct common name listed on the scorecard.

4. The plants exhibited must be in the flower/fruiting stages unless otherwise specified. Seedling stages will not be used.

5. Each sample will be worth 10 points.

I. Grain Judging
1. Time - 15 minutes (two classes totaling 180 points).

2. Each class will consist of four 100-gram samples that will be placed in accordance to their quality.

3. All samples will consist of the same variety.

4. The grain judging classes may consist of wheat, barley, oats, rye or grain corn.

5. Samples will be labeled as livestock feed, seed or milling for human consumption.

6. Specimen evaluation will consist of one individual sample to be evaluated. Evaluation will be based upon the factors as listed on the appropriate scorecard.

7. The scoring will be based on 50 points for correct placing of the class using the Hormel system. Ten (10) points will be allotted for determining the desirability of each factor for the designated samples, for a total of 50 points possible. Each class will then have a total of 100 points.

J. General Knowledge Test
1. Time - 30 minutes (40 questions with a point value of 5 points per question, totaling 200 points).

2. Questions will test basic knowledge relative to the production and marketing of crops (plant growth
and development, seedbed preparation, tillage and cultivation, pest management, irrigation and fertilization, harvesting, crop quality, and marketing).

3. Questions will be taken from the last three years of national tests.

K. Determining the Degree of Desirability for Specimen Evaluation
   1. Desirable: Those specimens excelling in grading and marketing quality standards.
   2. Acceptable: Those specimens meeting the minimal grading and marketing quality standards.
   3. Undesirable: Those specimens having less than the minimal grading and marketing quality standards.
SEED ANALYSIS SCORECARD

Contestant No.______________________  Score: __________________

Sample No.

Base Crop _______________________(10 pts.)  ________________

Other Crop Seeds (10 pts. each)

______________________________

______________________________

______________________________

______________________________

______________________________

Weed Seeds (10 pts. each)

______________________________

______________________________

______________________________

______________________________

______________________________

TOTAL SCORE (100 pts. maximum)  ________________
WEED IDENTIFICATION LIST
The following samples will be either plant or seed.

1. Annual bluegrass (Poa annua)
2. Barnyardgrass (Echinochloa crusgalli)
3. Broadleaf plantain (Plantago major)
4. Buckhorn plantain (Plantago lanceolata)
5. Bull thistle (Cirsium vulgare)
6. Canada thistle (Cirsium arvense)
7. Cheatgrass (Bromus secalinus)
8. Chinese lettuce (Lactuca serriola)
9. Cockelbur (Xanthium pensylvanicum)
10. Common lambsquarters (Chenopodium album)
11. Common chickweed (Stellaria media)
12. Common mullein (Verbascum thapsus)
13. Cow parsnip (Heracleum lanatum)
14. Crabgrass (Digitaria spp.)
15. Curly dock (Rumex crispus)
16. Common dandelion (Taraxacum officinale)
17. Dodder (Cuscuta pentagona)
18. Dog fennel (Anthemis cotula)
19. Eastern Oregon Cheatgrass (Bromus rigidus)
20. False dandelion (Hypochaeris radicata)
21. Field bindweed/Wild morning glory (Convolvulus arvensis)
22. Groundsel (Senecio vulgaris)
23. Horsetail (Equisetum arvense)
24. Jointed goatgrass (Aegilops cylindrica)
25. Kochia (Kochia scoparia)
26. Lupine (Lupinus spp.)
27. Mallow (Malva spp.)
28. Mare’s tail (Urtica dioica)
29. Nettle (Urtica spp.)
30. Nightshade (Solanum spp.)
31. Perennial sowthistle (Sonchus arvensis)
32. Poison hemlock (Conium maculatum)
33. Prostrate knotweed (Polygonum aviculare)
34. Quackgrass (Agropyron repens)
35. Redroot pigweed (Amaranthus retroflexus)
36. Russian napweed (Centaurea repens)
37. Russian thistle (Salsola kali)
38. Scotch brome (Cytisus scoparius)
39. Sheep sorrel (Rumex acetosella)
40. Shepherd’s purse (Capsella bursa-pastoris)
41. Skeleton weed (Chondrilla juncea)
42. St. Johnswort/Klamath weed (Hyperacum perforatum)
43. Tansy ragwort (Senecio jacobaea)
44. Teasel (Dipsacus sylvestris)
45. Velvetgrass (Holcus spp.)
46. Western goldenrod (Solidago occidentalis)
47. Wild blackberry (Rubus laciniatus)
48. Wild carrot (Daucus carota)
49. Wild garlic/wild onion (Allium spp.)
50. Wild geranium (Geranium spp.)
51. Wild mustard (Brassica spp.)
52. Wild oats (Avena fatua)
53. Wild radish (Raphanus raphanistrum)
54. Yellow/green foxtail (Setaria glauca)
55. Yellow nutsedge (Cyperus esculentus)
WEED IDENTIFICATION SCORECARD

___ 1. Annual bluegrass (Poa annua)
___ 2. Barnyardgrass (Echinochloa crusgalli)
___ 3. Broadleaf plantain (Plantago major)
___ 4. Buckhorn plaintain (Plantago lanceolata)
___ 5. Bull thistle (Cirsium vulgare)
___ 6. Canada thistle (Cirsium arvense)
___ 7. Cheatgrass (Bromus secalinus)
___ 8. Chinese lettuce (Lactuca serriola)
___ 9. Cockelbur (Xanthium pensylvanicum)
___10. Common lambsquarter (Chenopodium album)
___11. Common chickweed (Stellaria media)
___12. Common mullein (Verbascum thapsus)
___13. Cow parsnip (Heracleum lanatum)
___14. Crabgrass (Digitaria spp.)
___15. Curlydock (Rumex crispus)
___16. Common dandelion (Taraxacum officinale)
___17. Dodder (Cuscuta pentagona)
___18. Dog fennel (Anthemis cotula)
___19. Eastern Oregon Cheatgrass (Bromus rigidus)
___20. False dandelion (Hypochaeris radicata)
___21. Field bindweed/Wild morning glory (Convolvulus arvensis)
___22. Groundsel (Senecio vulgaris)
___23. Horsetail (Equisetum arvense)
___24. Jointed goatgrass (Aegilops
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___29. Nettle (Urtica spp.)
___30. Nightshade (Solanum spp.)
___31. Perennial sowthistle (Sonchus arvensis)
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___33. Prostrate knotweed (Polygonum aviculare)
___34. Quackgrass (Agropyron repens)
___35. Redroot pigweed (Amaranthus retroflexus)
___36. Russian napweed (Centaurea repens)
___37. Russian thistle (Salsola kali)
___38. Scotchbroom (Cytisus scoparius)
___39. Sheep sorrel (Rumex acetosella)
___40. Shepherd's purse (Capsella bursa-pastoris)
___41. Skeleton weed (Chondrilla juncea)
___42. St Johnswort/Klamath weed (Hyperacum perforatum)
___43. Tansy ragwort (Senecio jacobaea)
___44. Teasel (Dipsacus sylvestris)
___45. Velvetgrass (Holcus spp.)
___46. Western goldenrod (Solidago occidentalis)
___47. Wild blackberry (Rubus laciniatus)
___48. Wild carrot (Daucus carota)
___49. Wild garlic/wild onion (Allium spp.)
___50. Wild geranium (Geranium spp.)
___51. Wild mustard (Brassica spp.)
cylindrica)

25. Kochia (Kochia scoparia)

26. Lupine (Lupinus spp.)

27. Mallow (Malva spp.)

52. Wild oats (Avena fatua)

53. Wild radish (Raphanus raphanistrum)

54. Yellow/green foxtail (Setaria glauca)

55. Yellow nutsedge (Cyperus esculentus)

Score (number correct ____ x 10) =
# Crops Identification List

**Symbols:** 
- (s) seed,  
- (p) plant,  
- (e) either plant or seed or both

**A. Grain Crops**  
1. Hard red winter wheat (s)  
2. Soft white wheat (e)  
3. Club wheat (p)  
4. Six-row barley (e)  
5. Two-row barley (p)  
6. White oats (s)  
7. Gray oats (s)  
8. Red oats (e)  
9. Rye (e)  
10. Field corn (e)  
11. Popcorn (e)  
12. Sorghum (e)  
13. Millet (e)  
14. Rice (e)  
15. Triticale (e)

**B. Grasses**  
1. Annual ryegrass (e)  
2. Perennial ryegrass (e)  
3. Tall fescue (e)  
4. Orchardgrass (e)  
5. Red fescue (e)  
6. Bentgrass (e)  
7. Kentucky bluegrass (e)  
8. Timothy (e)  
9. Meadow foxtail (e)  
10. Reed canarygrass (e)  
11. Crested wheatgrass(e)  
12. Intermediate wheatgrass (e)  
13. Sudangrass (e)  
14. Smooth bromegrass (e)

**C. Miscellaneous Crops**  
1. Sugar beets (e)  
2. Hops (p)  
3. Mint (p)  
4. Rape (p)  
5. Meadowfoam (e)  
6. Cotton (e)  
7. Safflower (e)  
8. Peanuts (e)

**D. Legumes**  
1. Alfalfa (e)  
2. Red clover (e)  
3. White clover (e)  
4. Alsike clover (e)  
5. Subclover (e)  
6. Crimson clover (e)  
7. Hairy vetch (e)  
8. Common vetch (e)  
9. Fieldpeas (e)  
10. Birdsfoot trefoil (e)  
11. Big trefoil (e)  
12. Sweetclover (e)  
13. Soybeans (e)  
14. Lentils (e)  
15. Dry beans (e)  
16. Lespedeza (e)

**E. Vegetables**  
1. Green peas (e)  
2. Sweet corn (e)  
3. Carrots (e)  
4. Green snap beans (e)  
5. Cabbage (p)  
6. Cauliflower (p)  
7. Broccoli (p)  
8. Tomatoes (p)  
9. Table beets (p)  
10. Cucumbers (p)  
11. Squash (p)  
12. Melons (p)--Cucurbits  
13. Cantaloupe (p)  
14. Onions (p)  
15. Garlic (p)  
16. Red potatoes (e)  
17. Russet potatoes (e)  
18. Round white potatoes (e)  
19. Radish (p)  
20. Lettuce (p)  
21. Turnip (p)  
22. Brussel sprouts (p)  
23. Rhubarb (p)  
24. Peppers (p)
Contestant No.

Score (number correct x 10) =

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**RANGE PLANT IDENTIFICATION LIST (All specimens will be plants)**

**Grasses**
1. Alpine timothy (*Phleum alpinum)*
2. Bluebunch wheatgrass (*Agropyron spicatum*)
3. Bottlebrush squirreltail (*Sitanion hystrix*)
4. Crested wheatgrass (*Agropyron desertorum*)
5. Giant wildrye (*Elymus condensatus*)
6. Idaho fescue (*Festuca idahoensis*)
7. Indian ricegrass (*Oryzopsis hymenoides*)
8. Medusahead rye (*Elymus caput-medusa*)
9. Mountain brome (*Bromus carinatus*)
10. Mountain muhly (*Muhlenbergia montana*)
11. Needle and thread grass (*Stipa comata*)
12. Prairie junegrass (*Koeleria cristata*)
13. Pubescent wheatgrass (*Agropyron trichophorum*)
14. Ripgut brome (*Bromus rigidus*)
15. Sandberg bluegrass (*Poa secunda*)
16. Sheep fescue (*Festuca ovina*)
17. Sherman big bluegrass (*Poa ampla*)
18. Thurber needlegrass (*Stipa thurberiana*)
19. Western wheatgrass (*Agropyron smithii*)

**Grass-Like**
1. Death camas (*Zygadenus venenosus*)
2. Elk sedge (*Carex geyeri*)
3. Ross sedge (*Carex rossii*)
4. Wire rush (*Junetus balticus*)

Forbs

1. Balsamroot (*Balsamhoriza sagittata*)
2. Big-headed clover (*Trifolium macroccphalum*)
3. Bur clover (*Medicago hispida*)
4. Bracken fern (*Pteridium aguilinum*)
5. Indian paintbrush (*Castilleja spp.*)
6. Little larkspur (*Delphinium spp.*)
7. Locoweed (*Astragalus spp.*)
8. Mules ear/wild sunflower (*Wyethia spp.*)
9. Mullein (*Verbascum thapsus*)
10. Pepperweed (*Lepidium spp.*)
11. Poverty weed (*Iva axillaris*)
12. Tall larkspur (*Delphium occidentale*)
13. Tarweed (*Madia spp.*)
14. Western yarrow (*Achillea lanulosa*)

Semi-Woody

1. Bitterbrush (*Purshia tridentata*)
2. Buckbrush (*Ceonothus spp.*)
3. Big sagebrush (*Artemisia tridentata*)
4. Green rabbitbrush (*Chrysothamnus viscidiflorus*)
5. Halogeton (*Halogeton glomeratus*)
6. Horsebrush (*Tetradymia spp.*)
7. Low sagebrush (*Artemisia arbuscula*)
8. Saltbrush (*Atriplex spp.*)
9. Serviceberry (*Amelanchier alnifolia*)
10. Rubber rabbitbrush (*Chrysothamnus nauseosus*)
Contestant Number: __________

___ 1. Alpine timothy (Phleum alpinum)
___ 2. Bluebunch wheatgrass (Agropyron spicatum)
___ 3. Bottlebrush squirreltail (Sitanion hystrix)
___ 4. Crested wheatgrass (Agropyron desertorum)
___ 5. Giant wildrye (Elymus condensatus)
___ 6. Idaho fescue (Festuca idahoensis)
___ 7. Indian ricegrass (Oryzopsis hymenoides)
___ 8. Medusahead rye (Elymus caput-medusa)
___ 9. Mountain brome (Bromus carinatus)
___10. Mountain muhly (Muhlenbergia montana)
___11. Needle & thread grass (Stipa comata)
___12. Prairie junegrass (Koeleria cristata)
___13. Pubescent wheatgrass (Agropyron trichophorum)
___14. Ripgut brome (Bromus rigidus)
___15. Sandberg bluegrass (Poa secunda)
___16. Sheep fescue (Festuca ovina)
___17. Sherman big bluegrass (Poa ampla)
___18. Thurber needlegrass (Stipa thurberiana)
___19. Western wheatgrass (Agropyron smithii)
___20. Death camas (Zygodenus venenosus)
___21. Elk sedge (Carex geyeri)
___22. Ross sedge (Carex rossii)
___23. Wire rush (Junetus balticus)
___24. Balsamroot (Balsamorhiza sagittata)
___25. Big-headed clover (Trifolium macroccphalum)
___26. Bur clover (Medicago hispida)
___27. Bracken fern (Pteridium aquilinum)
___28. Indian paintbrush (Castilleja spp.)
___29. Little larkspur (Delphinium spp.)
___30. Locoweed (Astragalus spp.)
___31. Mules ear/wild sunflower (Wyethia spp.)
___32. Mullein (Verbascum thapsus)
___33. Pepperweed (Lepidium spp.)
___34. Poverty weed (Iva axillaris)
___35. Tall larkspur (Delphium occidentale)
___36. Tarweed (Madia spp.)
___37. Western yarrow (Achillea lanulosa)
___38. Bitterbrush (Purshia tridentata)
___39. Buckbrush (Ceanothus spp.)
___40. Big sagebrush (Artemisia tridentata)
___41. Green rabbitbrush (Chrysothamnus viscidiflorus)
___42. Halogeton (Halogeton glomeratus)
___43. Horsebrush (Tetradymia spp.)
___44. Low sagebrush (Artemisia arbuscula)
___45. Saltbrush (Atriplex spp.)
___46. Serviceberry (Amelanchier alnifolia)
___47. Rubber rabbitbrush (Chrysothamnus nauseosus)

Score (number correct ___ x 10) =
RESOURCE MATERIAL LIST

**Weeds:**
- Gilkey's Weeds of the Pacific Northwest
  LeRea J. Dennis, 1980 copy
  OSU Bookstore
- Growers Weed I.D. Handbook, Publication 4030
  Coop Extension Mailroom
  1422 Harbor Way South
  Richmond, CA 94804
- Transparencies Masters for Crop and Weed I.D.
  U.S. Department of Health, Education and Welfare
  Office of Education, Bureau of Research

**Range Plants:**
- Pacific Northwest Range Handbook, Nature and Use
  Extension PNW Bulletin #73
- Important Plants on National Forest Ranges of Eastern Oregon and Washington
  Range Research Report #1
  U.S. Department of Agriculture - Forest Service
- Range Plants
  Extension Circular #1037
- Extension Range Plant Series
  (Consists of single sheets giving descriptions of specific weeds, grasses, shrubs and trees found on Eastern Oregon range lands.)

**Hay:**
- Extension Circulars
  #942 - What to look for in evaluating hay
  #943 - What it is and why it is important
- Pacific Northwest Extension Publication #223
  Alfalfa Hay, Quality and Testing

**Potatoes:**
- U.S. Standards for Grades of Potatoes
  U.S. Department of Agriculture
  Consumer and Marketing Service

**Fruit and Nut:**
- Extension Service Material

**Silage and Hay:**
- Forage Production and Management
  Extension Service Publication