Purity

1. The laboratory analysis for law enforcement, labeling, and general information as to seed quality, should determine the following for the sample analyzed:

 1)

 2)

 3)

1. Define the six kinds of working samples.
2. What is coated or encrusted seed?
3. Seed that is free of any applied material is \_\_\_\_\_\_\_\_\_.
4. What is film-coated seed?
5. What is the purpose of inoculated seed?
6. Define treated seed.
7. Explain how to obtain a working sample.
8. Which mechanical divider consists of a hopper, a cone, and a series of baffles which direct the seed into two spouts?
9. Which divider is not recommended for oil seeds and kinds susceptible to damage?
10. When should you use the hand mixing / spoon method for dividing?
11. Describe the proper procedure for dividing samples by hand.
12. Describe the steps involved in using a seed divider.
13. Working weights listed in Table 2A are based on the approximate weight of\_\_\_\_\_\_\_\_

pure seed units for the\_\_\_\_\_\_\_\_\_ and\_\_\_\_\_\_\_\_\_\_\_pure seed units for the \_\_\_\_\_\_\_\_\_\_.

1. You are making a purity analysis on a kind of seed for which there is no recommended weight for the working sample. How do you determine the proper weight for the working sample?
2. Should the size of the working sample be changed from the prescribed amount in the rules?
3. What is the minimum weight for purity and minimum weight for noxious-weed purity for the following kind of seed;
4. Alfalfa
5. India mustard
6. Kentucky Bluegrass
7. Sunflower
8. Hard fescue

1. How are the working sample weights determined for kinds or groups of kinds of different sizes, none of which comprise over 50% of the sample?
2. On what approximate number of seed is the weight of a purity test determined?
3. Name the four components of a purity sample.
4. Name some equipment you might need for a purity analysis.
5. Describe how you would weigh and conduct purity samples less than 25 grams.
6. Describe how you would weigh and conduct purity samples over 25 grams.
7. Explain what you do when it is difficult to accurately separate species or cultivars that are similar in appearance.
8. An encrusted sample of sugar beet has arrived in your lab. You’ve been asked to conduct a purity test on it. List the component parts of the purity test, and determine the weight to be used for the purity test.

 Weight of 100 seeds: 7.820 grams

1. What is considered pure seed using the 5% rule?

1. Calculate the weight of coating material and percentage coating material of the following carrot seed.

 Weight of 100 coated units 1.846

 Weight of 100 de-coated units 0.167

1. Define pure seed unit.
2. What are the 4 exceptions that may be applied in determining whether seeds are other crop or inert matter.
3. Describe when wild onion and wild garlic bulblets would be considered inert.
4. When a broken seed is classified as other crop and is found in a sample, what information would you use to determine whether it is considered other crop or inert?
5. Explain what it means when a species appears on the All States Noxious Weed List.
6. Name the structures / fruiting bodies that are considered weed seeds.
7. What section of the rules would you use to determine if a partially damaged other crop seed found in a purity is classified as other crop or inert?
8. Describe the uniform blowing procedure.
9. What species use the uniform blowing procedure?
10. What two species using the uniform blowing procedure require that the working sample be divided into four equal parts before blowing?
11. Where do you obtain a standard calibration sample for a general blower?
12. How do you separate the light fraction of a Canada, Kentucky, or rough bluegrass sample after it has been blown?
13. How would you handle a five-species mixture sample in which two of the species needed the uniform blowing procedure?
14. How would you classify a contaminant seed of a rough bluegrass in a Kentucky bluegrass sample that was blown into the light portion?
15. Name the one species that requires the use of both the uniform blowing procedure and multiple unit procedure for purity testing.
16. Give some differences between AOSA, Canada M&P, and ISTA rules when reporting purity results.
17. When is the multiple unit procedure used?
18. Define the structures of a multiple unit.

1.)

2.)

3.)

1. What is disregarded when determining the length of the fertile floret or an attached structure?
2. On which grasses would you NOT remove the sterile florets from the fertile ones?
3. Name two exceptions to the multiple unit procedure.
4. What are the components for a purity on a coated seed sample?
5. How do you remove the coating material from seed?
6. Name the purity components when the seed is labeled to show both inert coating material separately.
7. How is a noxious-weed examination different than a purity examination?
8. According to Volume 3, Uniform Classification of Weed and Crop Seeds, when seeds of an indistinguishable species are found as contaminants and may be classifies as either weed or crop, how shall they be regarded? Give an example of one such species.

Classify the following as Pure seed, Weed seed or Inert matter

\_\_\_\_\_\_ Soybean without a seed coat

\_\_\_\_\_\_ Empty florets of weedy grasses

\_\_\_\_\_\_ A multiple floret of orchardgrass

\_\_\_\_\_\_ Pieces of broken or damaged crop seed one-half or less the original size

\_\_\_\_\_\_ Nematode galls

\_\_\_\_\_\_ Empty seed of buckwheat

\_\_\_\_\_\_ Dodder with coiled embryo present

\_\_\_\_\_\_ Wild carrot with the embryo end broken off

\_\_\_\_\_\_ Seed balls of beets

\_\_\_\_\_\_ Seeds that have started to germinate

\_\_\_\_\_\_ Chalcid fly damaged seed

\_\_\_\_\_\_ Seed units of grasses in which the caryopses are spongy or corky

\_\_\_\_\_\_ Empty sunflower seed

\_\_\_\_\_\_ Ragweed with only the involucre present

\_\_\_\_\_\_ Onions large enough to stay on the sieve, no skin or damage

\_\_\_\_\_\_ Smut balls and fungus bodies

\_\_\_\_\_\_ Weevil infested vetch with little or no opening in the seed coat

\_\_\_\_\_\_ A Kentucky bluegrass that has blown over to the light portion during the blowing procedure

\_\_\_\_\_\_ Broken and unattached wings of shrub and tree seeds

\_\_\_\_\_\_ Soil particles, sand or stones

\_\_\_\_\_ Insect damage seed provided that the damage is entirely internal

\_\_\_\_\_\_ Capsules or clusters of Juncus spp.

\_\_\_\_\_ Damaged seed (other than grasses) with over half of the embryo missing

\_\_\_\_\_ Legume seeds that are broken but held together by the seed coat

\_\_\_\_\_ Intact fruits without seeds of Asteraceae

\_\_\_\_\_ A piece of weed seed more than one-half the original size, with the embryo missing

\_\_\_\_\_ Seeds of cucumber or tomato whether or not they are filled

\_\_\_\_\_ A wheat seed without the embryo

\_\_\_\_\_ Ergot and smut filled caryopses of dallisgrass and bahigrass

\_\_\_\_\_ Wild onion bulblets that are completely devoid of husk and pass through a 1/13 inch round hole sieve

\_\_\_\_\_ Buckhorn seeds black, with no brown color evident

\_\_\_\_\_ Immature, shriveled or crushed seed of the kind under consideration

\_\_\_\_\_ Multiple florets and entire spikelets of barley, bluegrass and oats

\_\_\_\_\_ A piece of crop seed exactly one-half the original size, with half of the embryo missing

\_\_\_\_\_ Seed units with nematode galls or fungus bodies that are entirely enclosed within the

 seed unit

\_\_\_\_\_ Free caryopses of quackgrass that are 2mm or less in length

\_\_\_\_\_ Ragweed (Ambrosia spp.) seed with both the involucre and pericarp present

\_\_\_\_\_ Chalcid damaged seeds of alfalfa

\_\_\_\_\_ Entire coated units regardless of whether or not they contain a seed

Define the following Volume 3, Uniform Classification of Weed and Crop Seeds, seed classifications

 A=

 F=

 H=

 R=

 S=

 T=

 V=

Calculations

What is the minimum weight for purity analysis?

 Peanut

 Korean lespedeza

 Crimson clover

 Cabbage

What is the minimum weight for noxious weed seed examination?

 Alsike clover

 White clover

 Rose clover

 Soybeans

Calculate the following purity percentages

Onion:

Pure seed 7.002 grams

Inert 0.134 grams

Other crop 0.077 grams

Weed 0.098 grams

Alfalfa:

Red clover 2.125 grams

Other crop 0.050 grams

Inert 0.075 grams

Weeds 0.030 grams