

PURITY ANALYSIS IN THE
ADMINISTRATION OF THE ACT

§201.45 Obtaining the working sample.

(a) The working sample on which the actual analysis is made shall be taken from the submitted sample in such a manner that it will be representative.

(b) The sample shall be repeatedly divided to the weight to be used for the working sample. Some form of efficient mechanical divider should be used. To avoid damaging large seeds and coated seeds, a divider should be used which will prevent the seeds from falling great distances onto hard surfaces. In case the proper mechanical divider cannot be used or is not available, the sample shall be thoroughly mixed and placed in a pile and the pile shall be repeatedly divided into halves until a sample of the desired weight remains.

[5 FR 32, Jan. 4, 1940, as amended at 20 FR 7929, Oct. 21, 1955; 25 FR 8769, Sept. 13, 1960; 59 FR 64492, Dec. 14, 1994]

§201.46 Weight of working sample.

(a) *Unmixed seed.* The working samples for purity analysis and noxiousweed seed examination of unmixed seed shall be at least the weights set forth in table 1.

(b) *Mixtures consisting of one predominant kind of seed or a group of kinds of similar size.* The weights of the purity and noxious-weed seed working samples in this category shall be determined by the kind or group of kinds which compromise more than 50 percent of the sample.

(c) *Mixtures consisting of two or more kinds or groups of kinds of different sizes, none of which comprise over 50 percent of the sample.* The weights of the purity working samples in this category shall be the weighted averages (to the nearest half gram) of the weights listed in table 1 for each of the kinds which comprise the sample determined by the following method: (1) Multiply the percentage of each component in the mixture (rounded off to the nearest whole number) by the sample sizes specified in column 2, table 1, (2) add all these products, (3) total the percentages of

all components of the mixtures, and (4) divide the sum in paragraph (c)(2) of this section by the total in paragraph (c)(3) of this section. If the approximate percentage of the components of a mixture are not known they may be estimated. The weight of the noxious-weed seed working sample shall be determined by multiplying the weight of the purity working sample by 10 or by calculating the weighted average in the same manner described above for the purity working sample.

(d) Coated seed.

(1) Unmixed coated seed. Due to variation in the weight of coating materials, the size or weight of the working sample shall be determined separately for each lot. The weight of the working sample shall be determined by weighing 100 completely coated units and calculating the weight of 2,500 coated units for the purity analysis and 25,000 coated units for the noxious-weed seed examination.

(2) Mixtures of coated seed. The working weight shall be determined in the following manner:

(i) Calculate the weight of the working sample to be used for the mixture under consideration as though the sample were not coated by following paragraph (b) or (c) of this section.

(ii) Determine the amount of coating material on 100 coated units by weighing the coated units. Remove the coating material using the methods described in §§201.51b (c) and (d). Calculate the percentage of coating material using the following formulas:

Weight of coating material = weight of 100 coated units – weight of 100 de-coated units;

The percentage of coating material = weight of the coating material divided by the weight of 100 coated units × 100%.

(iii) The weight of the working sample shall be the product of the weight calculated in paragraph (d)(2)(i) of this section multiplied by 100 percent, divided by 100 percent minus the percentage of coating material calculated in paragraph (d)(2)(ii) of this section.

TABLE 1—WEIGHT OF WORKING SAMPLE

| Name of seed | Minimum weight for purity analysis (grams) | Minimum weight for noxious-weed seed examination (grams) | Approximate number of seeds per gram |
|--------------------------------|--|--|--------------------------------------|
| Agricultural Seed | | | |
| Agroticum | 65 | 500 | 39 |
| Alfalfa | 5 | 50 | 500 |
| Alfilaria | 5 | 50 | 440 |
| Alyceclover | 5 | 50 | 665 |
| Bahiagrass: | | | |
| Var. Pensacola | 5 | 50 | 600 |
| All other vars. | 7 | 50 | 365 |
| Barley | 100 | 500 | 30 |
| Barrelclover | 10 | 100 | 250 |
| Bean: | | | |
| Adzuki | 200 | 500 | 11 |
| Field | 500 | 500 | 4 |
| Mung | 100 | 500 | 24 |
| Beet, field | 50 | 500 | 55 |
| Beet, sugar | 50 | 500 | 55 |
| Beggarweed, Florida | 5 | 50 | 440 |
| Bentgrass: | | | |
| Colonial | 0.25 | 2.5 | 13,000 |
| Creeping | 0.25 | 2.5 | 13,515 |
| Velvet | 0.25 | 2.5 | 18,180 |
| Bermudagrass | 1 | 10 | 3,930 |
| Bermudagrass, giant | 1 | 10 | 2,950 |
| Bluegrass: | | | |
| Annual | 1 | 10 | 2,635 |
| Bulbous | 4 | 40 | 585 |
| Canada | 0.5 | 5 | 5,050 |
| Glaucantha | 1 | 10 | |
| Kentucky | 1 | 10 | 3,060 |
| Nevada | 1 | 10 | 2,305 |
| Rough | 0.5 | 5 | 4,610 |
| Texas | 1 | 10 | 2,500 |
| Wood | 0.5 | 5 | 4,330 |
| Bluejoint | 0.5 | 5 | 8,461 |
| Bluestem: | | | |
| Big | 7 | 70 | 320 |
| Little | 5 | 50 | 525 |
| Sand | 10 | 100 | 215 |
| Yellow | 1 | 10 | 1,945 |
| Bottlebrush-squirreltail | 9 | 90 | 300 |
| Brome: | | | |
| Field | 5 | 50 | 465 |
| Meadow | 13 | 130 | 190 |
| Mountain | 20 | 200 | 140 |
| Smooth | 7 | 70 | 315 |
| Broomcorn | 40 | 400 | 60 |
| Buckwheat | 50 | 500 | 45 |
| Buffalograss: | | | |
| (Burs) | 20 | 200 | 110 |
| (Caryopses) | 3 | 30 | 740 |
| Buffelgrass: | | | |
| (Fascicles) | 6 | 66 | 365 |
| (Caryopses) | 2 | 20 | 1,940 |
| Burclover, California: | | | |
| (in bur) | 50 | 500 | |
| (out of bur) | 7 | 70 | 375 |
| Burclover, spotted | | | |
| (in bur) | 50 | 500 | 50 |
| (out of bur) | 5 | 50 | 550 |
| Burnet, little | 25 | 250 | 110 |
| Buttonclover | 7 | 70 | 365 |
| Canarygrass | 20 | 200 | 150 |
| Canarygrass, reed | 2 | 20 | 1,185 |
| Carpgrass | 1 | 10 | 2,230 |
| Castorbean | 500 | 500 | 5 |
| Chess, soft | 5 | 50 | 555 |
| Chickpea | 500 | 500 | 2 |
| Clover: | | | |

TABLE 1—WEIGHT OF WORKING SAMPLE—Continued

| Name of seed | Minimum weight for purity analysis (grams) | Minimum weight for noxious-weed seed examination (grams) | Approximate number of seeds per gram |
|------------------------------|--|--|--------------------------------------|
| Alsike | 2 | 20 | 1,500 |
| Arrowleaf | 4 | 40 | 705 |
| Berseem | 5 | 50 | 455 |
| Cluster | 1 | 10 | 2,925 |
| Crimson | 10 | 100 | 330 |
| Kenya | 2 | 20 | |
| Ladino | 2 | 20 | 1,935 |
| Lappa | 2 | 20 | 1,500 |
| Large hop | 1 | 10 | 5,435 |
| Persian | 2 | 20 | 1,415 |
| Red | 5 | 50 | 600 |
| Rose | 7 | 70 | 360 |
| Small hop | 2 | 20 | 1,950 |
| Strawberry | 5 | 50 | 635 |
| Sub | 25 | 250 | 120 |
| White | 2 | 20 | 1,500 |
| Corn: | | | |
| Field | 500 | 500 | 3 |
| Pop | 500 | 500 | 3 |
| Cotton | 300 | 500 | 8 |
| Cowpea | 300 | 500 | 8 |
| Crambe | 25 | 250 | |
| Crested dogtail | 2 | 20 | 1,900 |
| Crotalaria: | | | |
| Lance | 7 | 70 | 375 |
| Showy | 25 | 250 | 80 |
| Slenderleaf | 10 | 100 | 205 |
| Striped | 10 | 100 | 215 |
| Sunn | 75 | 500 | 35 |
| Crownvetch | 10 | 100 | 305 |
| Dallisgrass | 4 | 40 | 620 |
| Dichondra | 5 | 50 | 470 |
| Dropseed, sand | 0.25 | 2.5 | 12,345 |
| Emmer | 100 | 500 | 25 |
| Fescue: | | | |
| Chewings | 3 | 30 | 900 |
| Hair | 1 | 10 | |
| Hard | 2 | 20 | 1,305 |
| Meadow | 5 | 50 | 495 |
| Red | 3 | 30 | 900 |
| Sheep | 2 | 20 | 1,165 |
| Tail | 5 | 50 | 455 |
| Flatpea | 100 | 500 | 25 |
| Flax | 15 | 150 | 180 |
| Foxtail, creeping | 1.5 | 15 | 1,736 |
| Foxtail, meadow | 3 | 30 | 893 |
| Galletagrass: | | | |
| (Other than caryopses) | 10 | 100 | 260 |
| (Caryopses) | 5 | 50 | 580 |
| Gramma: | | | |
| Blue | 2 | 20 | 1,595 |
| Side-oats: | | | |
| (Other than caryopses) | 6 | 60 | 350 |
| (Caryopses) | 2 | 20 | 1,605 |
| Guar | 75 | 500 | 35 |
| Guineagrass | 2 | 20 | 2,205 |
| Hardinggrass | 3 | 30 | 750 |
| Hemp | 50 | 500 | 45 |
| Indiangrass, yellow | 7 | 70 | 395 |
| Indigo, hairy | 7 | 70 | 435 |
| Japanese lawngrass | 2 | 20 | 1,325 |
| Johnsongrass | 10 | 100 | 265 |
| Kenaf | 50 | 500 | |
| Kochia, forage | 2 | 20 | 1,070 |
| Kudzu | 25 | 250 | 80 |
| Lentil | 120 | 500 | 14–23 |
| Lespedeza: | | | |
| Korean | 5 | 50 | 525 |

TABLE 1—WEIGHT OF WORKING SAMPLE—Continued

| Name of seed | Minimum weight for purity analysis (grams) | Minimum weight for noxious-weed seed examination (grams) | Approximate number of seeds per gram |
|----------------------------|--|--|--------------------------------------|
| Sericea | 3 | 30 | 820 |
| Siberian | 3 | 30 | 820 |
| Striate | 5 | 50 | 750 |
| Lovegrass, sand | 1 | 10 | 3,585 |
| Lovegrass, weeping | 1 | 10 | 3,270 |
| Lupine: | | | |
| Blue | 500 | 500 | 7 |
| White | 500 | 500 | 7 |
| Yellow | 300 | 500 | 9 |
| Manilagrass | 2 | 20 | |
| Medic, black | 5 | 50 | 585 |
| Milkvetch | 9 | 90 | 270 |
| Millet: | | | |
| Browntop | 8 | 80 | 315 |
| Foxtail | 5 | 50 | 480 |
| Japanese | 9 | 90 | 315 |
| Pearl | 15 | 150 | 180 |
| Proso | 15 | 150 | 185 |
| Molassesgrass | 0.5 | 5 | 7,750 |
| Mustard: | | | |
| Black | 2 | 20 | 1,255 |
| India | 5 | 50 | 625 |
| White | 15 | 150 | 160 |
| Napiagrass | 5 | 50 | |
| Needlegrass, green | 7 | 70 | 370 |
| Oat | 75 | 500 | 35–50 |
| Oatgrass, tall | 6 | 60 | 417 |
| Orchardgrass | 3 | 30 | 945 |
| Panicgrass, blue | 2 | 20 | 1,370 |
| Panicgrass, green | 2 | 20 | 1,305 |
| Pea, field | 500 | 500 | 4 |
| Peanut | 500 | 500 | 1–3 |
| Rape: | | | |
| Annual | 7 | 70 | 345 |
| Bird | 7 | 70 | 425 |
| Turnip | 5 | 50 | 535 |
| Winter | 10 | 100 | 230 |
| Redtop | 0.25 | 2.5 | 10,695 |
| Rescuegrass | 20 | 200 | 115 |
| Rhodesgrass | 1 | 10 | 4,725 |
| Rice | 50 | 500 | 65 |
| Ricegrass, Indian | 7 | 70 | 355 |
| Roughpea | 75 | 500 | 40 |
| Rye | 75 | 500 | 40 |
| Rye, mountain | 28 | 280 | 90 |
| Ryegrass: | | | |
| Annual | 5 | 50 | 420 |
| Intermediate | 8 | 80 | 338 |
| Perennial | 5 | 50 | 530 |
| Wimmera | 5 | 50 | |
| Safflower | 100 | 500 | 30 |
| Sagewort, Louisiana | 0.5 | 5 | 8,900 |
| Sainfoin | 50 | 500 | 50 |
| Saltbush, fourwing | 15 | 150 | 165 |
| Sesame | 7 | 70 | 360 |
| Sesbania | 25 | 250 | 105 |
| Smilo | 2 | 20 | 2,010 |
| Sorghum | 50 | 500 | 55 |
| Sorghum alnum | 15 | 150 | 150 |
| Sorghum-sudangrass | 65 | 500 | 38 |
| Sorghum ¹ | 15 | 150 | 135 |
| Sourclover | 5 | 50 | 660 |
| Soybean | 500 | 500 | 6–13 |
| Spelt | 100 | 500 | 25 |
| Sudangrass | 25 | 250 | 100 |
| Sunflower | 100 | 500 | |
| Sweetclover: | | | |
| White | 5 | 50 | 570 |

TABLE 1—WEIGHT OF WORKING SAMPLE—Continued

| Name of seed | Minimum weight for purity analysis (grams) | Minimum weight for noxious-weed seed examination (grams) | Approximate number of seeds per gram |
|----------------------|--|--|--------------------------------------|
| Yellow | 5 | 50 | 570 |
| Sweet vernalgrass | 2 | 20 | 1,600 |
| Sweetvetch, northern | 19 | 190 | 130 |
| Switchgrass | 4 | 40 | 570 |
| Timothy | 1 | 10 | 2,565 |
| Timothy, turf | 1 | 10 | 2,565 |
| Tobacco | 0.5 | 5 | 15,625 |
| Trefoil: | | | |
| Big | 2 | 20 | 1,945 |
| Birdsfoot | 3 | 30 | 815 |
| Triticale | 100 | 500 | |
| Vaseygrass | 3 | 30 | 970 |
| Veldtgrass | 4 | 40 | 655 |
| Velvetbean | 500 | 500 | 2 |
| Velvetgrass | 1 | 10 | 3,360 |
| Vetch: | | | |
| Common | 150 | 500 | 19 |
| Hairy | 75 | 500 | 35 |
| Hungarian | 100 | 500 | 24 |
| Monantha | 100 | 500 | |
| Narrowleaf | 50 | 500 | 60 |
| Purple | 100 | 500 | 22 |
| Woollypod | 100 | 500 | 25 |
| Wheat: | | | |
| Common | 100 | 500 | 25 |
| Club | 100 | 500 | 25 |
| Durum | 100 | 500 | 25 |
| Polish | 100 | 500 | 25 |
| Poulard | 100 | 500 | 25 |
| Wheat-Agrotricum | 65 | 500 | 38 |
| Wheatgrass: | | | |
| Beardless | 8 | 80 | 275 |
| Fairway crested | 4 | 40 | 685 |
| Standard crested | 5 | 50 | 425 |
| Intermediate | 15 | 150 | 175 |
| Pubescent | 15 | 150 | 180 |
| Siberian | 5 | 50 | |
| Slender | 7 | 70 | 295 |
| Streambank | 10 | 50 | 370 |
| Tall | 15 | 150 | 165 |
| Western | 10 | 100 | 250 |
| Wildrye: | | | |
| Basin | 8 | 80 | 317 |
| Canada | 11 | 110 | 190 |
| Russian | 6 | 60 | 360 |
| Vegetable Seed | | | |
| Artichoke | 100 | 500 | 24 |
| Asparagus | 100 | 500 | 25 |
| Asparagusbean | 300 | 500 | 8 |
| Bean: | | | |
| Garden | 500 | 500 | 4 |
| Lima | 500 | 500 | 2 |
| Runner | 500 | 500 | 1 |
| Beet | 50 | 300 | 60 |
| Broadbean | 500 | 500 | |
| Broccoli | 10 | 50 | 315 |
| Brussels sprouts | 10 | 50 | 315 |
| Burdock, great | 15 | 150 | |
| Cabbage | 10 | 50 | 315 |
| Cabbage, Chinese | 5 | 50 | 635 |
| Cabbage, tronchuda | 10 | 100 | |
| Cardoon | 100 | 500 | |
| Carrot | 3 | 50 | 825 |
| Cauliflower | 10 | 50 | 315 |
| Celeriac | 1 | 25 | 2,520 |
| Celery | 1 | 25 | 2,520 |
| Chard, Swiss | 50 | 300 | 60 |
| Chicory | 3 | 50 | 940 |

TABLE 1—WEIGHT OF WORKING SAMPLE—Continued

| Name of seed | Minimum weight for purity analysis (grams) | Minimum weight for noxious-weed seed examination (grams) | Approximate number of seeds per gram |
|--|--|--|--------------------------------------|
| Chives | 5 | 50 | |
| Citron | 200 | 500 | 11 |
| Collards | 10 | 50 | 315 |
| Corn, sweet | 500 | 500 | |
| Cornsalad: | | | |
| Vars. Fullhearted and Dark Green Fullhearted | 5 | 50 | |
| All other vars | 10 | 50 | 380 |
| Cowpea | 300 | 500 | 8 |
| Cress: | | | |
| Garden | 5 | 50 | 425 |
| Upland | 2 | 35 | 1,160 |
| Water | 1 | 25 | 5,170 |
| Cucumber | 75 | 500 | 40 |
| Dandelion | 2 | 35 | 1,240 |
| Dill | 3 | 50 | 800 |
| Eggplant | 10 | 50 | 230 |
| Endive | 3 | 50 | 940 |
| Gherkin, West India | 16 | 160 | 153 |
| Kale | 10 | 50 | 315 |
| Kale, Chinese | 10 | 50 | |
| Kale, Siberian | 8 | 80 | 325 |
| Kohlrabi | 10 | 50 | 315 |
| Leek | 7 | 50 | 395 |
| Lettuce | 3 | 50 | 890 |
| Melon | 50 | 500 | 45 |
| Mustard, India | 5 | 50 | 625 |
| Mustard, spinach | 5 | 50 | 535 |
| Okra | 100 | 500 | 19 |
| Onion | 7 | 50 | 340 |
| Onion, Welsh | 10 | 50 | |
| Pak-choi | 5 | 50 | 635 |
| Parsley | 5 | 50 | 650 |
| Parsnip | 5 | 50 | 430 |
| Pea | 500 | 500 | 3 |
| Pepper | 15 | 150 | 165 |
| Pumpkin | 500 | 500 | 5 |
| Radish | 30 | 300 | 75 |
| Rhubarb | 50 | 300 | 60 |
| Rutabaga | 5 | 50 | 430 |
| Sage | 25 | 150 | 120 |
| Salsify | 50 | 300 | 65 |
| Savory, summer | 2 | 35 | 1,750 |
| Sorrel | 2 | 35 | 1,080 |
| Soybean | 500 | 500 | 6–13 |
| Spinach | 25 | 150 | 100 |
| Spinach, New Zealand | 200 | 500 | 13 |
| Squash | 200 | 500 | 14 |
| Tomato | 5 | 50 | 405 |
| Tomato, husk | 2 | 35 | 1,240 |
| Turnip | 5 | 50 | 535 |
| Watermelon | 200 | 500 | 11 |

¹ Rhizomatous derivatives of a johnsongrass×sorghum cross or a johnsongrass×sudangrass cross.

[25 FR 8769, Sept. 13, 1960, and 30 FR 7888, June 18, 1965, as amended at 32 FR 12780, Sept. 6, 1967; 35 FR 6108, Apr. 15, 1970; 41 FR 20156, May 17, 1976; 46 FR 53635, Oct. 29, 1981; 59 FR 64492, Dec. 14, 1994; 65 FR 1707, Jan. 11, 2000]

§201.47 Separation.

(a) The working sample shall be weighed in grams to four significant

figures and shall then be separated into four parts: (1) Kind or variety to be considered pure seed, (2) other crop seed, (3) weed seed, and (4) inert matter. The components shall be weighed in grams to the same number of decimal places as the working sample. The percentage of each part shall be determined to two decimal places.