



# RESEARCH NOTES<sup>EDITOR'S</sup>

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### CONVERTING STANDARD SEEDING RATES FOR GRASSES TO ACTUAL SEEDING RATES PER ACRE

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Standard rates specifying the amount of grass seed to sow per acre are stated in most of the more recent publications as pounds of live pure seed (lps) to be used. For a seeding project these rates must be converted to the actual amount of seed to sow because seed as purchased from the dealer or grower is never all live pure seed. Even the best lots of seed contain some dirt, chaff, broken seeds, straw, and weed seeds. Also, part of the pure seed always fails to germinate. Consequently, the standard seeding rates for live pure seed are too low for projects using seed as it is purchased.

The identification tag for each sack of seed purchased will give the percent purity and germination. Purity, as shown on the tag, is the percentage of pure seed in the sack; the remainder is dirt, chaff, broken seeds, straw, weed and crop seeds, and other foreign matter. Germination is the percentage of the pure seed which will germinate when tested by standard methods. From these data the actual or field seeding rates can be calculated.

To determine how much seed to sow per acre, first multiply the percent germination by the percent purity and divide by 100. The answer is the percentage of live pure seed per pound. Next divide 100 by the percentage of live pure seed; this gives a converting factor expressing the pounds of purchased seed which contain one pound of live pure seed. Then to compute actual seeding rates, multiply the live pure seeding rate by the conversion factor. The following example with crested wheat-

grass having a purity of 90 percent, a germination of 80 percent, and to be seeded at 6 pounds live pure seed per acre will illustrate the procedure:

$$\frac{80 \times 90}{100} = 72 \text{ percent live pure seed}$$

$$\frac{100}{72} = 1.39 \text{ conversion factor (pounds of seed containing one pound live pure seed)}$$

$$6 \text{ (live pure seeding rate per acre)} \times 1.39 = 8.34 \text{ lbs actual seeding rate per acre.}$$

The importance of making an adjustment for germination and purity is clearly emphasized by the example where it was found that 8.34 pounds of seed should be seeded to secure a live pure seeding rate of 6 pounds per acre. Had purity and germination not been taken into account and six pounds of commercial seed been seeded per acre, the seeding rate would have fallen more than 25 percent short of the recommended.

The conversion factor can be read from the following table, instead of being calculated, once the percentage of live pure seed has been computed. This table is similar to that developed by the Soil Conservation Service<sup>1/</sup> and used by Sumner and Miller<sup>2/</sup>. The table gives the conversion factor for any whole-number percentage of live pure seed.

The attached alinement chart for use with seed having more than 30 percent live pure seed will give the conversion factor without computation of the percentage of live pure seed. The chart will be useful for all but a few species of grass; to have 30 percent live pure seed requires that purity and germination be about 50 to 60 percent, and this requirement will be met by most lots of commercial seed. To obtain the conversion factor, lay a straightedge on the chart from the appropriate percentage purity on the left-hand line of the chart to the germination percentage on the right-hand line of the chart. The point at which the straightedge intersects the center line will be the appropriate conversion factor to be used.

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<sup>1/</sup> U. S. Soil Conservation Serv., Pacific Coast Region, Nursery Div.  
How much seed do you sow per acre? Portland, Oreg., 1948. Mimeo

<sup>2/</sup> Sumner, D. C. and Miller, Milton D. Grass seed production. Calif.  
Agr. Ext. Service Circular 155, 22 illus. 1949.

Table of lps percents and conversion factors

| : Conv.<br>% lps: factor |        | : Conv.<br>% lps: factor |      | : Conv.<br>% lps: factor |      | : Conv.<br>% lps: factor |      | : Conv.<br>% lps: factor |      |
|--------------------------|--------|--------------------------|------|--------------------------|------|--------------------------|------|--------------------------|------|
| 1                        | 100.00 | 21                       | 4.76 | 41                       | 2.44 | 61                       | 1.64 | 81                       | 1.23 |
| 2                        | 50.00  | 22                       | 4.55 | 42                       | 2.38 | 62                       | 1.61 | 82                       | 1.22 |
| 3                        | 33.30  | 23                       | 4.35 | 43                       | 2.33 | 63                       | 1.59 | 83                       | 1.20 |
| 4                        | 25.00  | 24                       | 4.17 | 44                       | 2.27 | 64                       | 1.56 | 84                       | 1.19 |
| 5                        | 20.00  | 25                       | 4.00 | 45                       | 2.22 | 65                       | 1.54 | 85                       | 1.18 |
| 6                        | 16.67  | 26                       | 3.85 | 46                       | 2.18 | 66                       | 1.52 | 86                       | 1.16 |
| 7                        | 14.29  | 27                       | 3.70 | 47                       | 2.13 | 67                       | 1.49 | 87                       | 1.15 |
| 8                        | 12.50  | 28                       | 3.57 | 48                       | 2.08 | 68                       | 1.47 | 88                       | 1.14 |
| 9                        | 11.11  | 29                       | 3.45 | 49                       | 2.04 | 69                       | 1.45 | 89                       | 1.12 |
| 10                       | 10.00  | 30                       | 3.33 | 50                       | 2.00 | 70                       | 1.43 | 90                       | 1.11 |
| 11                       | 9.09   | 31                       | 3.23 | 51                       | 1.96 | 71                       | 1.41 | 91                       | 1.10 |
| 12                       | 8.33   | 32                       | 3.12 | 52                       | 1.92 | 72                       | 1.39 | 92                       | 1.09 |
| 13                       | 7.69   | 33                       | 3.03 | 53                       | 1.89 | 73                       | 1.37 | 93                       | 1.08 |
| 14                       | 7.14   | 34                       | 2.94 | 54                       | 1.85 | 74                       | 1.35 | 94                       | 1.06 |
| 15                       | 6.67   | 35                       | 2.86 | 55                       | 1.82 | 75                       | 1.33 | 95                       | 1.05 |
| 16                       | 6.25   | 36                       | 2.78 | 56                       | 1.79 | 76                       | 1.32 | 96                       | 1.04 |
| 17                       | 5.88   | 37                       | 2.70 | 57                       | 1.75 | 77                       | 1.30 | 97                       | 1.03 |
| 18                       | 5.56   | 38                       | 2.63 | 58                       | 1.72 | 78                       | 1.28 | 98                       | 1.02 |
| 19                       | 5.26   | 39                       | 2.56 | 59                       | 1.69 | 79                       | 1.27 | 99                       | 1.01 |
| 20                       | 5.00   | 40                       | 2.50 | 60                       | 1.67 | 80                       | 1.25 | 100                      | 1.00 |

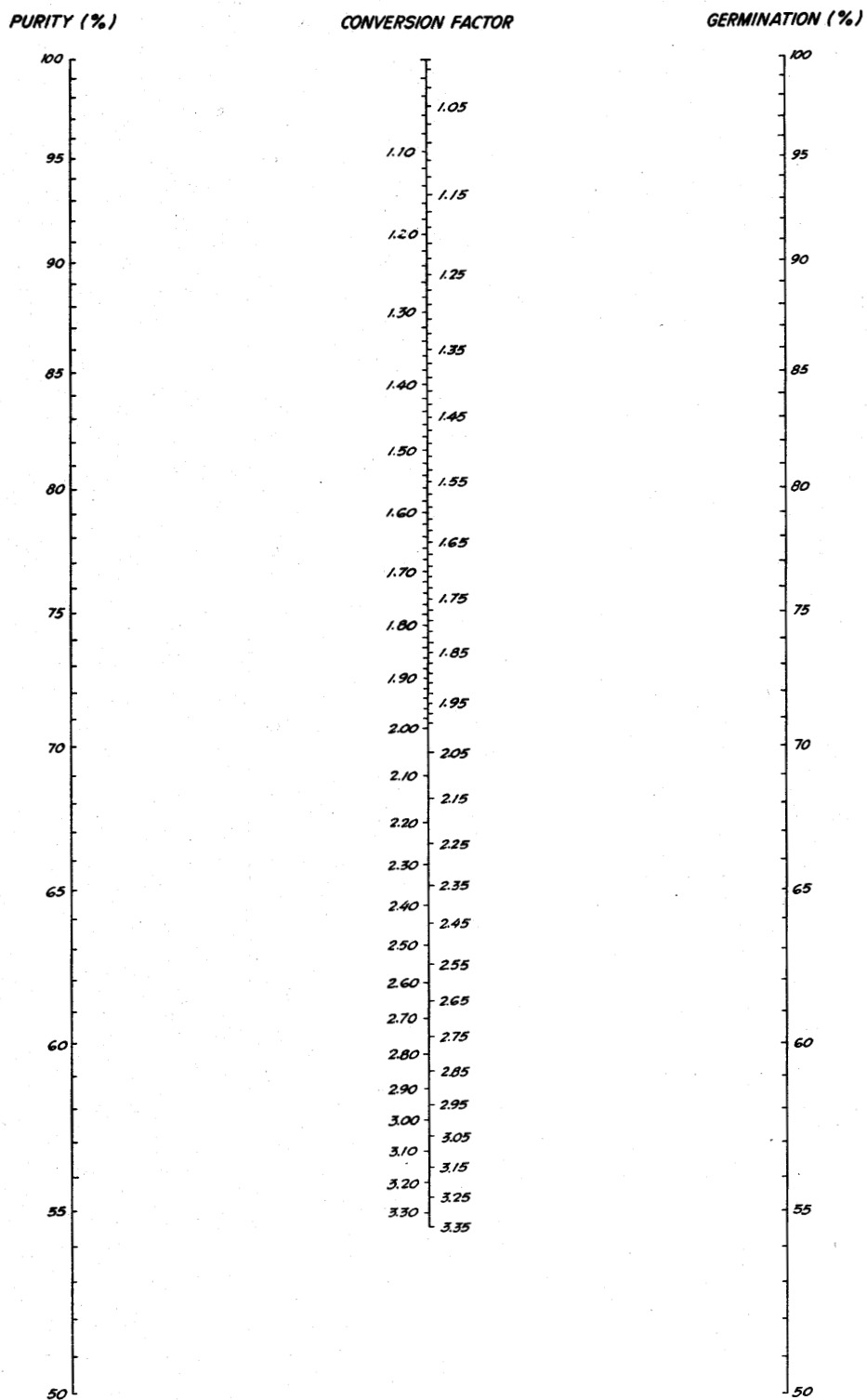


Figure 1. Alinement chart for determining factor to be used in converting live-pure to actual field seeding rates.