Seed

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## Gravity Separators

Gravity separators are in common use in southern states' extractories to separate seed of the southern pines into uniform weight sizes. Seed sizing has resulted in more uniform sized seedlings which can make cultural and harvest operations easier and cheaper. Most use two sizes.

In northern states dealing with smaller seed, they have been used less. Most felt that sizing seed should result in more uniformity in the seedbed, cleaner seed for storage, and can do no harm. If some species fail to show any big variation in the seedlings produced from different size seed, the heavier two grades can be recombined before storage as is done at Mt. Sopris Nursery in Colorado where no differences caused by seed size were evident in Englemann spruce beds. Wisconsin reports more uniformity in seedbeds and better accuracy in the adjustment of seed sowing rates. Several extractories have separators too large for their daily seed production. Any one in the northeast interested in buying a separator should consider the size which is a little smaller than a desk top.

## The Mount Sopris Extractory

The Mount Sopris Nursery Extractory, RD, Carbondale, Colorado was described by Sidney Hanks, Nurseryman, who has operated this new and unique extractory for the past two years. The oven, manufactured by the Despatch Oven Co., Minneapolis, Minnesota is a continuous type loaded at the feed end by a vibrator feed hopper. The cones travel on a wire mesh belt through a water spray, an oven section, a second water spray (often not required) and

into a final area section where opening Is completed. The heat to open the cones Is provided by direct fired gas burners. Heated air at high velocity is drawn down past the cones by fans whose suction is applied below the belt. This system eliminates the blowing of seed and debris which would otherwise result from such high velocity transfer. The oven is particularly efficient on lodgepole pine cones which can be opened at the rate of 17 bushels per hour at 170 degrees F. The extractory is a one man operation operated on shifts. Englemann spruce, Douglas fir, ponderosa pine and lodgepole pine cones have been run very successfully with this machine.

Seed Inventory Methods

Most nurseries maintain a perpetual seed inventory checked by a physical inventory once a year. Germination tests are also run so that most nurserymen now know how much seed they have and how good it is. Few nurserymen calculate the number of seedlings each lot can be expected to produce. For several years Saratoga has calculated the potential production of seedlings for each lot and for each species. With these figures and an annual production goal, it is easy to calculate the number of years supply on hand. With this information, administrators can tell at a glance how their supplies stand in relation to production and storage goals.

Sample Calculation of Potential Production

1. Calculate the potential production (PP) of a seedlot as 1-0 trees.

PP as 1-0/lb of seed = Seed/lb of cleaned seed X Purity X Germinative Energy X 1-0 Tree

2. Calculate the PP/lb of seed for the lot as shipping stock

PP/lb as shipping stock = PP as 1-0 X Factor

The factor to be used must be based on experience for the age class shipped. Steps 1 and 2 above may, of course, be combined.

The reason they are not combined at Saratoga is that the PP as 1-0 in Step # 1 is used as part of the sowing rate calculation and appears on the seed record card in Column # 6.

3. The PP for the lot is found by multiplying the PP/lb by the number of lbs in lot.

4. The total PP for a species is the sum of the PP of all lots of that species. This divided by the annual production goal for the species will show the number of years supply of seed on hand. For actual figures used in Steps 1 - 3 see sample seed record chart below.

## SEED SUPPLY RECORD

SL No. 569 Species WP Origin Adk Collector or Dealer Herbst Bros.
Yr. Coll. 1962 Rec'd as Fruit X Seed ____ Bushels 999 Pounds 1013 Yield oz/bu. 16.
Moisture % 5.4 Remarks

| Date | Seed / lb Clean | Purity % | Germ Energy | 1-0 Tree % | Potential per lb. | Prod.-Mill. per lot | 1-0 Trees per sq. ft. | Sowing lb./C' |
|---|---|---|---|---|---|---|---|---|
| 1-3-63 | 26,448 | 94.00 | 56 | 50 | .007 | 7.09 | 50 | 2.86 |
| 10-20-63 | | | | | | 6.61 | | |
| 4-18-64 | | | | | | 5.66 | | |
| 10-18-64 | | | | | | 4.35 | | |
| 11-5-64 | | | | | | 1.92 | | |

### INVENTORY

| Date | Removed | Balance | By | For | Date | Removed | Balance | By | For |
|---|---|---|---|---|---|---|---|---|---|
| 11-15-62 | — | 1013 | | | | | | | |
| 10-20-63 | 69 | 944 | OWT | LOW. | | | | | |
| 4-18-64 | 135 | 809 | OWT | SAR. | | | | | |
| 10-8-64 | 187 | 622 | OWT | LOW. | | | | | |
| 11-5-64 | 384 | 274 | OWT | SAR. | | | | | |
| 10-5-65 | 274 | 0 | OWT | SAR. | | | | | |
| | | | | | | | | | |

569 White Pine Pinus strobus Forestry Form 238

Other

A discussion of the term tree percent revealed that there are variations in definitions based on the use made of the numerical value. Some use counts at the end of the first growing season. Others use 2-0, 3-0 or shipping counts as the basis for calculating tree percent. It appears to matter little which is chosen as long as It is defined when communicating with others.

Seed Supplies

Most nurseries have adequate supplies of seed except red pine, larch, Virginia pine and balsam fir. West Virginia is experimenting, with a cone cutter to be used to count seed in cones. If experience shows that this method of cone evaluation works, more money can be paid for higher than for lower yielding cones.