

**Potato . . .**

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and one-half oz. has been proved to be adequate. When dropped at a 10-inch spacing in 36-inch rows 16 cwt. of seed is required per acre and with perfect stands provides a plant population of 17,400 hills. Eighty per cent survival leaves nearly 14,000 hills which with good fertility and weather conditions can produce over 400 cwt. per acre.

An average production of three lbs. or more per hill can be attained, with average tuber weight at eight ounces and a good percentage over 10 ozs. when average set is six tubers per hill. Tuber set is closely associated with number of stems per hill. Larger seed with fewer eyes will produce fewer stems per acre than will small seed with a greater number of eyes and a higher percentage of blossom ends which produce more sprouts. There is less knobby second growth and less growth cracking with more stems per hill.

Single drop seed produces more stems per hill; therefore, a greater number of tubers is formed and average size of tubers produced is smaller. In favorable seasons, single drop seed from good certified seed lots may produce more tonnage of desirable medium sizes (six to 12 ozs.) than larger cut seed. Whole seed generally grows back better than does cut seed after severe spring frosts.

There is less chance of seed piece rot and stand loss with whole seed. Seed treatments for cut seed tend to reduce seed piece rot. Undipped cut seed held at 55 to 65 degree temperatures and high humidity will cork over naturally. Such a protective cork layer prevents entry of rot organisms. Suberization (cork cell formation) takes place also when freshly cut seed is planted in soil with proper

temperature, moisture and aeration. Seed piece rot occurs more frequently in cold wet and hot dry soils which do not permit rapid suberization.

**Planting Dates**

Experience with severe June frosts some years has discouraged April planting which was also aimed at early harvest and sale. Early season market opportunities have decreased due to competition from Yakima, Santa Maria and Madras. In recent years, most of the crop has been planted after mid-May. Optimum planting data for commercial russets varies with years and occurrence of frost but probably ranges between May 10-20.

**Irrigation**

Good drainage and sandy soils simplify irrigation because drainage takes care of excessive water application. The crop needs a steady uniform supply of moisture. Light frequent irrigations are best. Dry periods cause mishapen tubers. Alternate wet dry conditions at midseason cause growth cracks.

Uniformly good moisture is required from start of tuber set which generally begins about 50 days after planting.

Dark vine color is usually an indication of dry soil. Heavy use of fertilizer requires more frequent irrigation.

**Harvesting**

Rapid adoption of bulk harvesting since 1950 left the area with an equipment inventory of various types of harvesters capable of harvesting 15,000 acres or more in favorable harvest seasons and on the lighter clod-free soils.

Better color and quality is observed in crops harvested from dug double rows. Drying for an hour or so in the dug row before bulking toughens the skin, reduces damage and brightens color. There is appreciable quality loss in crops harvested by combination digger bulkers.

Rough handling in digging, bulk-

ing and storing is causing an appreciable percentage of mechanical damage responsible for heavier cull out at packing.

**Storage**

Research reports show that potatoes stored around 65 degrees for two weeks after digging, shrink and decay less than when stored initially at lower temperatures. Subsequent storage at 36-48 degrees is satisfactory for table stock. In general, low temperatures and high humidity result in least shrink. Cellar ventilation must be sufficient to prevent condensation of water in surface portions of the pile.

At temperatures below 50 sugar accumulates in tubers with increasing rapidly down to 32 degrees. Below 36 degrees, the increase is very rapid. This is important to shippers of chipping potatoes. High sugar content causes dark chip color. Average freezing point of 29 degrees varies greatly with individual tubers.

At 45 degrees sprouting will be delayed about 126 days, at 40 degrees, 200 days, and at 35 degrees sprouting will be delayed indefinitely.

Sprout inhibiting hormone dusts and sprays and more recent gas treatment offer possibilities of maintaining quality of pack and reducing shrink in potatoes which are packed in March, April and May. Potatoes packed during those months sprout rapidly in the warmer retail store temperatures. Use of sprout inhibitors at packing time has helped but the materials used are most effective if applied before sprouting has started.

**Grading**

Consumer packaging, sizing and rapid trend to washing as well as decreased number of market outlets has led to much greater use of packing sheds with growers being paid for packout. The grower has little control over grading; and the shed, having no financial interest in the cellar run stock

delivered for packing, tends to cull more heavily.

Buying on the basis of percentage of No. 1's and No. 2's determined by inspection of samples of potatoes delivered has been tried. The problems of getting the same percentage packout becomes the buyers problem under this buying method. As owner of the cellar run potatoes, he is free to cull more heavily if desired.

It is increasingly difficult to find buyers for cellar graded potatoes. The main outlet appears to be to repackers in the terminal areas. There is a trend to concentrate control of production in the hands of those who control market outlets.

Potato growing on contract for field run production, developed in Idaho for processing is reported to be based on \$1 for crops grading 50 per cent No. 1 with an addition one cent per field run cwt. for each one per cent additional No. 1's above 50 per cent.

**Grades**

Growers object strongly to changes proposed for U.S. grades. The proposal that grades specify no minimum size is objectionable

because an appreciable percentage of production is not covered by marketing agreements, and so is not regulated in this respect. Small sizes packed as U.S. No. 1 in unregulated areas would result in loss of prestige for all graded potatoes.

The proposed requirement of fairly clean would further restrict markets to local sales through packing sheds by making it harder to make grade in cellars for sale to terminal repackers who wash in their repacking operation and can use slightly dirty potatoes.

The proposed requirement of 50 per cent instead of 40 per cent over six ounces for the Size A specification is objectionable because it tends to fix trade requests, including government purchase specifications, at a higher unrealistic level.

Reduction of soft rot tolerance from one to one-half per cent, reduction from six to five per cent for external defects and reduction from 11 to eight per cent in total combined external and internal de-

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**Late Potato Crop Field Run Yield Averages**

In Cwt. Per Acre, By Years, By States

	1957	1956	1955	1954	1953
Oregon	240	240	220	220	220
Washington	235	225	255	235	220
Idaho	200	185	195	170	185
California late	265	275	190	190	220
Maine	280	284	254	206	237

Average yield in the U. S. rose from 80 cwt. per acre in 1940 to 172 cwt. per acre in 1957. Late crop average yield in 1957 is given as 183 cwt. Klamath yield advantage has decreased materially.

U. S. acreage has declined from 2,832,000 in 1940 to 1,374,000 in 1957 but production has been maintained. Potato growing has been concentrated in the more efficient areas and in the hands of fewer specialized growers. It is reported that 2 percent of the nation's growers (24,674 of them growing 10 acres or more) produce 88% of the nation's crop. An average of about 40 acres for each of these growers. Census figures for the 1954 crop show that 5510 farms growing 50 acres or more produced 53% of the 1954 potato crop.

Statistics show that a 10 percent increase in national supplies above 210 million cwt. cuts farm prices in half. A 211 million cwt. supply in 1952-53 brought a farm income of \$569,000,000 at \$3.21 per cwt.

The 1953-54 supply of 232 million cwt. brought in \$252,000,000 at \$1.31 per cwt. The 1954-55 supply of 220 million cwt. sold for 394 million at \$2.15 per cwt.

USDA's planting guides are based on marketings of past crops. For 1958 guides suggested 15% less early spring acreage; 8% less late spring; and 6% less summer and fall acreage.

Percentage cuts suggested from 1957 were: 4% for the eastern late states; 9% for the central states; 7% for the western late states. Reductions of 15% were suggested for: Washington, Nevada, Utah and North Dakota and Minnesota. Idaho's goal was 8% smaller. A 7% reduction was suggested for Oregon. No reduction was suggested for California late.

Opportunity to double gross income and create a reasonable net by growing 10% less acreage is unquestionably a rare bargain. But the reduction is hard to attain on a voluntary basis.

Secretary Benson and others are pointing out that acreage reduction is far more profitable than attempts to divert excessive production to convince individual growers that acreage reductions suggested in guides will not occur until each grower takes the suggestion seriously and reduces his own planting.



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