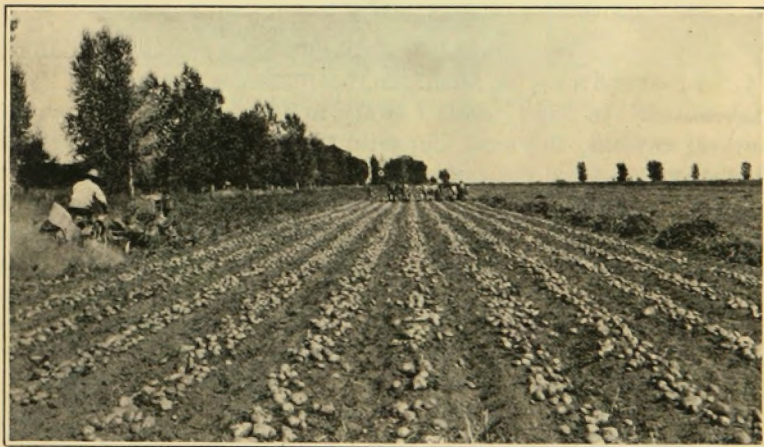


Bulletin 288-A

July, 1930

THE "600-BUSHEL CLUB" IN COLORADO



Seated on the potato digger operating both digger and tractor, is L. G. Schutte, American Spud King, whose record yield in 1929 was 1145.17 bushels of Brown Beauty potatoes on a measured acre.

COLORADO AGRICULTURAL COLLEGE

EXTENSION SERVICE

F. A. ANDERSON, DIRECTOR

FORT COLLINS

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THE "600-BUSHEL CLUB" IN COLORADO

By C. H. METZGER

The official potato-yield club idea owes its origin to Pennsylvania, where official yield records were obtained beginning in 1917, but the "400-bushel club" was not officially organized until 1922. Michigan has had a "300-bushel club" among certified seed growers for a number of years. Organizations of yield clubs or organizations of a similar nature now exist in several other potato states, notably, New York, Ohio, California and New Jersey. Other states are also starting the movement. Nebraska and Montana have taken steps to organize clubs and the movement will probably become national in its scope in a few more years.

The movement was started in Colorado on a somewhat different plan from Pennsylvania or Michigan, by the organization of a "potato-king contest" in Rio Grande County in 1927. This idea was used for several reasons, the most important of which was the fact that 400-bushel yields were too common in Colorado, so that a yield limit had to be determined. Eleven out of fifteen entries made over 600 bushels, so this was the minimum yield adopted for state recognition. This has worked out well as this yield has kept the club from being a burden to the county agent and his potato-king-contest committee. This same plan of organization has since been followed in Garfield, Alamosa and Montrose counties and will be carried into other counties in the near future.

The soil and climatic conditions of Colorado are ideal for potato production and it is very doubtful if any other state can equal the yearly record when these potato-king contests are organized in all of the main potato-producing counties.

Objects

Pennsylvania has been taking records of yields for 13 years and not a single grower in the state has made a yield of over 700 bushels during that time and their club is a 400-bushel club. Michigan has a 300-bushel club to which only certified seed growers are eligible. It is one of the greatest honors that can come to a grower to obtain membership in this club. New Jersey has a 300-bushel club. They make this statement: "To the layman, a yield of 300 bushels to the acre holds no particular significance, but to the potato grower who gambles with the weather, while waging a summer's fight against weeds, insects and disease, a 300-bushel crop is a noteworthy achievement."



Fig. 1.—Alfalfa-sod land produces the highest yields of potatoes.

These yields that are so highly honored in those states are considered just fair by good growers in Colorado and everyone familiar with potato growing in Colorado knows that much higher yields are obtained, but would anyone in these states believe offhanded reports of high yields in Colorado?

This brings us to the first object of the 600-bushel club: To provide an accurate check on the yield under the supervision of the agricultural college, so that it may be directly compared with yields of other growers in other places obtained in the same manner and so that it will be generally accepted as official. The word "official" is the foundation of the club's existence, and gives the work a standing value and the basis for crediting the work by farmers and by extension and experiment station workers in other states.

Second, interesting competition is stimulated between growers, counties and states and a definite uniform method of measuring results is being adopted. Growers, in an effort to beat the other fellow, study their methods more closely and seek spots where they may be improved.

Third, the movement centers interest on large yields and for this reason may be severely criticized by those who maintain it encourages over-production. A study of the costs of production which are presented in this publication will show that high yields lower the cost of production and insure a profit even in such years as 1928. On this basis the encouragement of high yields is justified. Large yields

are not the only feature stressed by this club as quality also comes into consideration in the aim of the club which is, "More U. S. No. 1 Potatoes per Acre."

Fourth, there are always potato kings in every community who receive their title because of large acreage and others who always claim extraordinarily high yields. This movement stresses the production per acre rather than the acreage and stops unofficial rumors of high yields as a check is provided.

Fifth, the best methods of potato production are demonstrated and not only the grower who obtains membership in the club is benefitted, but others may study his methods, which are always recorded.

Sixth, membership in the only 600-bushel club in the world is one of the greatest honors that can come to a grower, as there are not often more than 20 growers in the United States and Canada combined who have official yields of over 600 bushels.

Seventh, the club has assisted materially in the location of high-yielding seed stocks.

Season of 1927

The 1927 record of cultural practices is not as complete as the 2 succeeding years as the chief interest was seed stocks and rotation. The name of L. G. Schutte appears twice as one yield is on his own farm and the other on a rented farm. H. C. Henry appears twice, once with Peachblow and once with Brown Beauty. There are 11



Fig. 2.—Sweet clover pastured by the farm flock of sheep is excellent preparation for big yields of potatoes.

members, all in Rio Grande County. Six of the records were made with the Brown Beauty and 5 with the Perfect Peachblow. The average yield of the 11 growers is 710.2 bushels per acre, 1 yield between 800 and 900 bushels, 5 between 700 and 800, and 5 between 600 and 700. Three growers treated their seed, using Semesan. Two used seed grown in a seedplot the previous season and one used certified seed. Eight of these crops were grown on alfalfa-sod land, one following potatoes after alfalfa and two following peas.

SUMMARY OF 600-BUSHEL POTATO CLUB FOR 1927
All in Rio Grande County—Eleven Members

Name	Variety	Yield	Seed treatment	Kind of seed	Previous crop
F. D. Speiser	Peachblow	833.2	None	Common	Peas
L. G. Schutte	Brown Beauty	777.3	Semesan	Seed Plot	Alfalfa
J. J. Montgomery	Peachblow	771.	None	Common	Alfalfa
H. C. Henry	Peachblow	765.5	None	Common	Potatoes, Alfalfa
Falk Bros.	Peachblow	756.	None	Common	Alfalfa
L. G. Schutte	Brown Beauty	716.3	Semesan	Seed Plot	Alfalfa
M. Manzanares	Peachblow	665.3	None	Common	Alfalfa
H. C. Henry	Brown Beauty	636.	None	Common	Alfalfa
L. N. Headlee	Brown Beauty	636.	None	Common	Alfalfa
Fred Joels	Brown Beauty	633.5	None	Common	Peas
A. Shroeder	Brown Beauty	632.	Semesan	Certified	Alfalfa

Season of 1928

The season of 1928 was not as favorable for potato production as 1927. This point is emphasized by the fact that only 4 growers, 3 in Rio Grande County and 1 in Garfield County, made 600 bushels or over. There are several noteworthy facts in connection with this season. First, L. G. Schutte and H. C. Henry repeated their 1927 performance. Second, Garfield County organized a contest and the Russet Burbank made over 600 bushels. Third, alfalfa sod produced 3 of these yields and 1 was after potatoes, second-year alfalfa ground. Fourth, barnyard manure made a contribution toward 2 of these yields. The yield of 1047 bushels by "Ike" Schutte broke the 1927 American record of 1038 bushels by Zuckerman of Stockton, California, but a California grower had a better yield in 1928, so Schutte did not hold the record long. Schutte's vines were very badly damaged by hail on August 25, otherwise he would probably have made 1200 or 1500 bushels.

SUMMARY OF 600-BUSHEL POTATO CLUB FOR 1928

Name	Variety	Yield	Seed treatment	Kind of seed	Previous crop	Amt. seed	Spacing	Cultivation	Irrigation
L. G. Schutte	Brown Beauty	1047	Semesan	Seed Plot	Manure Alfalfa	1800	34x14	4	Sub.
H. C. Henry	Peachblow	688	None	Common	Manure, Potatoes, Alfalfa	1400	34x14	3	Sub
Grant Oxley	Brown Beauty	718	None	Common	Alfalfa	1200	34x14	3	Sub
Willie Haas	Russet Burbank	616	None	Seed Plot	Alfalfa	1300	34x16	10	14

Total—4 members; 3, Rio Grande County; 1, Garfield County.
 Variety—2, Brown Beauty; 1, Peachblow; 1, Russet Burbank.
 Average Yield—767.25 bushels; 1, 1000-1100; 1, 700-800; 2, 600-700.
 Seed treatment—3, none; 1, Semesan.
 Kind of seed—2, common; 2, seedplot.
 Previous crop—3, first year after alfalfa; 1, second year after alfalfa.
 Fertilizer—2, manure, 15 tons.
 Average amount of seed—1450 pounds or 24.17 bushels.
 Average spacing—34x14.5 inches.
 Average number of cultivations—5.
 Manure—2, at rate of 15 tons per acre.
 Irrigations—3, sub 1-14.
 Whole seed—3.
 Out seed—1.



Fig. 3.—Levelled land produces the largest yields of potatoes under San Luis Valley conditions.

Season of 1929

Four counties conducted potato-king contests in 1929 and all qualified members in the 600-bushel club. There were 11 members, L. G. Schutte appearing the third consecutive year with 2 acres, 1 from the seedplot on his own farm and the other from his 90-acre commercial field on a rented farm. Alvin McGraw of Montrose County also appeared twice, once with Rural New Yorker No. 2, and once with Brown Beauty.

Schutte's 1145.17 bushels established a new American record. The vines were frozen September 7, which materially reduced his yield. The season was again somewhat unfavorable and many of the measured acres fell just a few bushels short of the required 600.

There were several other noteworthy things in connection with this year's results. The potato-king title was won in Montrose County with a yield of 672 bushels of Bliss Triumphs, a remarkable performance for this variety, and probably a world's record. Seed of certified origin produced the high yields in this unfavorable season.

First-year alfalfa ground again proved best. Sweet-clover ground proved its worth for the first time in the history of the club. Barnyard manure was used by 4 of the 11 members.

The amount of seed used per acre is steadily increasing. Seed treatment is gaining in popularity.

SUMMARY OF 600-BUSHEL POTATO CLUB FOR 1929

Name	Variety	Yield	Seed treatment	Kind of seed	Previous crop	Amt. seed	Spacing	Culti- vation	Irriga- tion
L. G. Schutte	Brown Beauty	1145.17	None	Cert.	Manure-Pot. Alf.	5800	34x12	3	Sub
C. P. McKelvie	Brown Beauty	917.	None	Common	Manure-Alfalfa	1400	29x16	2	Sub
L. G. Schutte	Brown Beauty	869.8	None	Cert.	Alfalfa	2100	34x12	3	Sub
John Fultz	Peachblow	646.	None	Cert.	Sweet Clover	1700	36x11	3	Sub
S. A. Donnegan	Russet Rural	675.9	Cor. Sub	Cert.	Manure-Alfalfa	1500	32x9	3	3
Ed Faast	Triumph	672.	Semes.	Cert.	Potato-Alfalfa	1400	32x11	5	4
Alvin McGraw	Rural	603.75	None	Cert.	Manure-Alfalfa	1200	36x10	3	4
Alvin McGraw	Brown Beauty	670.6	None	Cert.	Potato-Wheat-Alf.	1200	30x10	3	5
Frank Heath	Rural	618.9	None	Cert.	Alfalfa	1500	32x10	3	8
Emil Strand	Rural	607.6	Hot. For.	Cert.	Alfalfa	1300	37½x11	2	6
W. W. Price	Rural	631.4	Lime	Cert.	Sweet Clover	1500	36x11	2	6

Total—11 members; 3, in Rio Grande County; 1, Garfield; 1, Alamosa; 6, Montrose County.

Variety—4, Brown Beauty; 1, Peachblow; 1, Russet Rural; 1, Triumph; 4, Rural New Yorker No. 2.

Average yield—732.56 bushels; 1, 1100-1200; 1, 900-1000; 1, 800-900; 8, 600-700.

Seed treatment—7, none; 1, corrosive sublimate; 1, semesan; 1, hot formaldehyde; 1, lime.

Kind of seed—10, certified origin; 1, common.

Previous crop—6, first year after alfalfa; 2, second year after alfalfa; 1, third year after alfalfa; 2, after sweet clover.

Fertilizer—4, manure, 15 tons.

Average amount of seed—1872.72 pounds or 31.21 bushels.

Average spacing—33.55x11.18 inches.

Average cultivation—2.91.

Average irrigation—4, sub; average other 5.1.

Summary for 3 Years

During the 3 years of the club's existence there have been 26 members. This low number is undoubtedly due to the unfavorable seasons of 1927 and 1928. Seventeen of these members are in Rio Grande County, 6 in Montrose County, 2 in Garfield County and 1 in Alamosa County. The first 2 of these counties should each average 15 members per year. The other 2 might each easily average 10. Saguache, Conejos, Eagle, Delta and Weld counties all have conditions which make possible the production of 600-bushel yields and will probably conduct contests in the near future.

The record of L. G. Schutte of Monte Vista is an enviable one. He is the only man who has made the club all 3 years. His yield has increased each year, resulting in his breaking the American record in 1929. H. C. Henry, also of Monte Vista, is the only other grower who has made over 600 bushels more than 1 year, having obtained membership both in 1927 and in 1928.

Varieties.—Brown Beauty leads all other varieties for heavy production, being represented 12 times. Perfect Peachblow made over 600 bushels 7 times, the Rurals 5 times, Russet Burbank once and Bliss Triumph once.

Yields.—The average yield of all members for the 3 years is 728.9 bushels. Fifteen of the yields are between 600 and 700 bushels; 6 between 700 and 800 bushels; 2 between 800 and 900 bushels; 1 be-

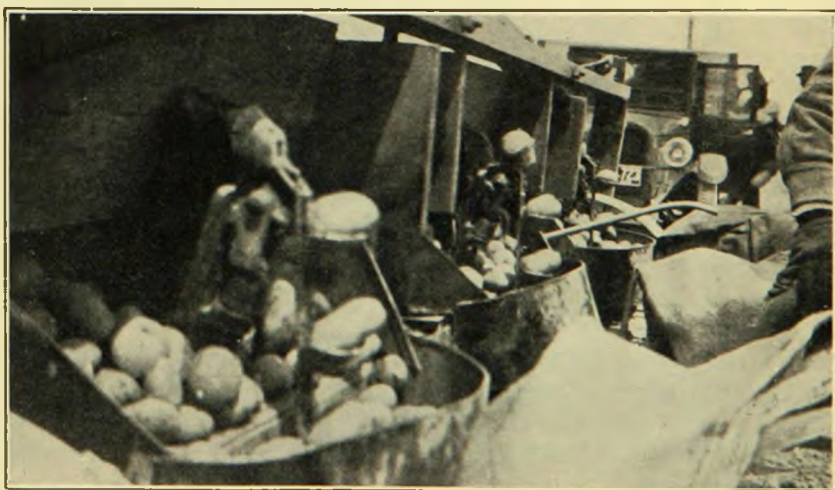


Fig. 4.—Large seed pieces and plenty of seed per acre make 600-bushel yields.



Fig. 5.—This machine insures a perfect stand, higher yields and a lower planting cost.

tween 900 and 1000; 1 between 1000 and 1100; and 1 between 1100 and 1200.

Seed Treatment.—Eighteen of these growers used no treatment, 5 used semesan, 1 corrosive sublimate, 1 hot formadehyde, and 1 lime.

Kind of Seed.—Eleven of these growers used seed of certified origin, 3 of seedplot origin and 12 used seed of common origin. A very significant fact is that in the somewhat unfavorable season of 1929 all but 1 of the 11 growers used seed of certified origin.

Previous Crop.—The value of rotation in the production of high yields is very forcefully brought out by the crop preceding these exceptional yields. Twenty-one of these yields were produced on ground which had been in a legume crop the previous year, 17 on alfalfa sod, 2 after sweet clover and 2 after peas. Four of the yields were produced on second-year potato ground but previous to the first crop of potatoes had been in alfalfa for a period of years. One of the yields was produced the third year after alfalfa, having been in potatoes and wheat the other 2 years. The significant fact in this discussion is that alfalfa has been the basis of the rotation which produced 22 of these yields, 17 the first year after alfalfa, 4 the second, and 1 the third year after alfalfa. From these figures it will be seen that the best results are obtained when potatoes follow a legume crop and that, so far, alfalfa has proved better than peas or sweet clover.

Fertilizer.—Twenty growers used no fertilizer in their rotation and 6 used well-rotted manure at an average rate of 15 tons. It is proposed to check this feature more closely in the future as manure may have been applied other places in the rotation in the cases of some of the other growers.

Amount of Seed.—The 26 members used an average of 1753.33 pounds or 29.22 bushels per acre, which is nearly double the amount used by the average grower. The amount varied from 1200 pounds to 5800 pounds. The size of seed piece varied from 1 ounce to 6 ounces, averaging a little more than 1 and one-half ounces.

Spacing.—The average planting distance was 33.6 by 12.07 inches.

Cultivations.—Average of 15 on record—3.54 times.

Irrigations.—Eighteen sub-irrigated. Average of other 8—6.25 times.

Whole Against Cut Seed.—Eighteen growers used whole seed and 8 used cut seed.

Cost of Production.—The statement has been made that high yields result in a lower cost of production and an increase in the margin of profit. High yields of good quality will prevent losses even in the most unfavorable years. This is well illustrated in the records from two farms in the San Luis Valley in 1928. Farm number 1 had an average yield of 224 sacks to the acre and a total cost

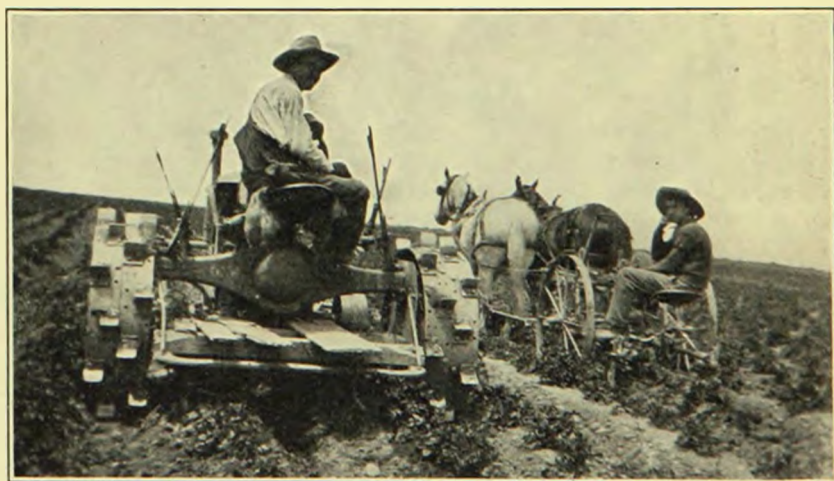


Fig. 6.—The old method and the new. Modern machinery saves labor and lowers costs.

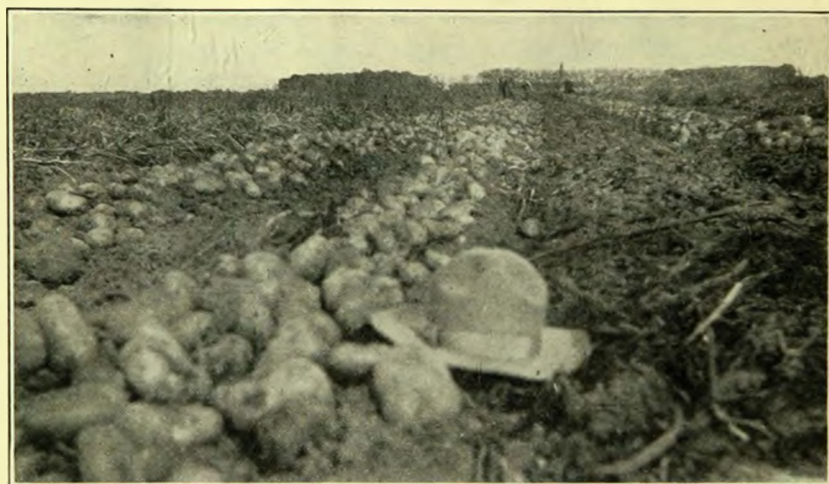


Fig. 7.—When they lay like this in the row, it means 777 bushels to the acre.

per cwt. loaded on the car of \$.48. The potatoes were good quality and averaged \$.68 per cwt. to the grower, a net return of \$.20 per cwt. or \$44.80 per acre. Farm number 2 had an average of 172.5 sacks per acre and a total cost per cwt. of \$.58. The potatoes were of average quality and averaged \$.55 per cwt. to the grower, a net loss of \$.03 per cwt. or \$4.18 per acre.

The following table is a summary of 22 cost records and showing very clearly that the higher the yield the lower the cost of production. It is very unfortunate that cost records are not available for all 600-bushel club members. Only the last two in this table belong to the club.

No. of records	Ave. cost per acre	Av. yield per acre. (cwt.)	Cost per cwt.
5	88.13	80	1.20
3	106.70	123	.87
5	98.48	165	.60
7	118.81	223	.53
1	142.97	315	.45
1	193.20	456	.42

From this table it will be seen that the grower who obtains the average yield for the state buys his potatoes from himself for \$1.20 per cwt. while the grower who makes the 600-bushel club pays only a little over a third of this amount or 45 cents per cwt. The following are complete cost records from growers who have made the 600-bushel club.



Fig. 8.—Eight-hundred thirty-three bushels on alfalfa ground in 1927 on Potato King Speiser's farm.



Fig. 9.—What alfalfa sod and good seed did for L. G. Schutte in 1928.

COST OF PRODUCING 15 ACRES OF POTATOES—1929

L. G. Schutte, Monte Vista, Colorado

Labor Costs:

Man labor

Harvesting 60 hours @ 30c.....	18.00	
Other, 176 hours @ 25c.....	44.00	
Horse labor, 514 hours @ 10c.....	51.40	113.40

Contract labor

Tractor use for planting and digging.....	27.00	
Picking 4500 sacks @ 9c.....	405.00	
Hauling 4689 cwt. @ 5c.....	234.45	
Resorting 4241 sacks @ 5½c.....	233.25	899.70

Material Costs:

Seed 34,500 lbs. @ 60c cwt.....	207.00	
Sacks 4500 @ 11c.....	495.00	
Twine 25c per 100 sacks.....	11.25	
Water at 40c per acre.....	6.00	719.25

Other Costs:

Int. on invest. in land (\$1875) at 6%.....	112.50	
Taxes @ 1.00 per acre.....	15.00	
Machinery.....	18.00	
Storage 4500 sacks @ 2c.....	90.00	
Overhead (10% of materials and labor).....	173.23	408.73

Total cost of production.....	2141.08
Total cost per acre.....	142.74
Total cost per cwt. (472,500 lbs.).....	.45

Returns:

Markets 4241 sacks.....	445,305 lbs.	2.10 cwt.....	9351.40
Culls (90 sacks.....)	9,450 lbs.	2.00 cwt.....	189.00
(135 sacks.....)	14,175 lbs.	1.00 cwt.....	141.75
Seed 34 sacks.....	3,570 lbs.	2.00 cwt.....	71.40

9753.55

Total returns.....	9753.55
Total returns per acre.....	650.24
Total returns per cwt. (472,500 lbs.).....	2.06
Net returns per cwt.	1.61

Labor	Man Hours	Horse Hours	Crop Rotation
Plowing.....	50.....	300	1925—Alfalfa 10 yr.
Harrowing.....	4.....	24	1926—Alfalfa
Dragging.....	4.....	24	1927—Alfalfa
Planting.....	40.....	...	1928—Potatoes
Cultivating.....	40.....	120	
Irrigating (sub).....	20.....	...	
Weeding.....	10.....	...	
Digging.....	60.....	...	
Sorting.....	.....	30	
Ditching.....	8.....	16	
	236	514	

COST OF PRODUCING 4 ACRES OF POTATOES—1929
C. P. McKelvie, Monte Vista, Colorado

Labor costs:

Man labor			
Harvesting 10 hrs. @ 30c.....	3.00		
Other, 73½ hrs. @ 25c	18.38		
Horse labor, 316 hrs. @ 10c	31.60		52.98

Contract labor

Picking 1650 sacks @ 8c	132.00		
Sorting 1485 sacks @ 5c	74.25		
Hauling 1485 sacks (110 lbs.) @ 6c cwt.	98.01	304.26	357.24

Material costs:

Manure 50% (30 L @ 1.00)	15.00		
Seed 5600 lbs. @ 2.25	126.00		
Sacks 1650 @ 7½c	123.75		
Twine 25c per 100 sacks	4.12		
Water 25c per acre	1.00		269.87

Other costs:

Int. on invest. in land (\$500) @ 6%	30.00		
Taxes @ 1.50 per acre	6.00		
Machinery	13.96		
Storage 1650 sacks @ 2c	33.00		
Overhead (10% of materials and labor)	62.71		145.67

Total cost of production			772.78
Total cost per acre (4 acres)			193.20
Total cost per cwt. (182,325 lbs.)			1.12

Returns:

Markets (1160 sacks @ 110 lbs.....)	127,600 lbs. @ 2.00 cwt.....	2552.00
(325 sacks @ 110 lbs.....)	35,750 lbs.	
Seed 165 sacks @ 115 lbs.....	18,975 lbs. @ (not all sold yet)	

Total returns	
Total returns per acre (8 acres)	
Total returns per cwt. (182,325 lbs.)	
Net returns per cwt.	

Labor	Man Hours	Horse Hours	Crop Rotation
Manuring (50%)	15	30	1925—Alfalfa
Flooding	4		1926—Alfalfa
Ditching	3	6	1927—Alfalfa
Plowing	20	100	1928—Alfalfa
Harrowing	3½	14	
Planting	8	16	
Cultivating	10	40	
Irrigating	10		
Digging	10	60	
Sorting		50	
	83½	316	

COST OF PRODUCING 18 ACRES OF POTATOES—1928

L. G. Schutte, Monte Vista, Colorado

Labor Costs:

Man labor			
Harvesting, 20 hrs. @ 30c	6.00		
Other, 194 hrs. @ 25c	48.50		
Horse labor, 546 hrs. @ 10c	54.60		
Contract:			
Manuring	22.50		
Tractor for planting and digging	27.00		
Picking 3600 sacks @ 8c	288.00		
Bucking and hauling 1500 sacks	60.00		
Hauling 3150 sacks @ 5c	157.50		
Resorting 1500 sacks @ 5c	75.00	630.00	739.10

Material Costs:

Manure, 50% to crop	22.50		
Seed 288 sacks @ 1.25 per sack	360.00		
Sacks, 3600 @ 11c	396.00		
Twine	8.00		
Water @ 40c per acre	7.20		
Treat Seed	37.50		831.20

Other Costs:

Int. on invest. in land (\$2250) @ 6%	135.00		
Taxes @ 1.00 per acre	18.00		
Machinery	21.65		
Storage	30.00		
Overhead (10% of materials and labor)	157.03		361.68

Total cost of production			1,931.98
Total cost per acre (18 acres)			107.33
Total cost per cwt. (403,200 lbs.) .....			.48

Returns:

Markets 3150 sacks @ 65c.....	2,293.20
Culls 100 sacks @ 30c.....	30.00
Seed 350 sacks @ 1.25.....	437.50
	<u>2,760.70</u>

Total returns	2,760.70
Total returns per acre (18 acres)	153.37
Total returns per cwt. (403,200 lbs.) .....	.68
Net returns per cwt. ....	.20

Labor	Man Hours	Horse Hours	Crop Rotation
Plowing	50	350	1925—Peas
Floating	6	36	1926—Peas
Planting	28	...	1927—Peas
Cultivating	50	100	
Pulling weeds	60	...	
Digging	20	...	
Sorting .....	...	60	
	<u>214</u>	<u>546</u>	

COST OF PRODUCING 7 ACRES OF POTATOES—1928

H. C. Henry, Monte Vista, Colorado

Labor Costs:

Man labor

Harvesting, 14 hrs. @ 30c	4.20	
Other, 96 hrs. @ 25c	24.00	
Horse labor, 438 hrs. @ 10c	43.80	

Contract:

Plowing @ \$4 per acre	28.00	
Picking 1785 sacks @ 7c	124.95	
Bucking and hauling to cellar, @ 2c	28.00	
Resorting 1240 sacks @ 4c	49.60	
Hauling 169,400 lbs. @ 2½c cwt.	42.35	272.90
		<u>\$344.90</u>

Material Costs:

Manure, 50%	52.50	
Seed, 9900 lbs. @ 1.25	123.75	
Sacks	200.70	
Twine	1.75	
Seed Treated	13.50	392.20
		<u>392.20</u>

Other Costs:

Int. on invest. in land (\$1750) @ 6%	105.00	
Taxes @ 3.50 per acre	24.50	
Machinery	8.22	
Storage	42.00	
Overhead (10% of materials and labor)	73.71	253.43
		<u>253.43</u>

Total cost of production	990.53
Total cost per acre (7 acres)	141.50
Total cost per cwt. (196,350 lbs.) .....	.50

Returns:

Markets 300 sacks @ 60c cwt.		
600 sacks @ 80c cwt.		
640 sacks @ 75c cwt.	1,254.00	
Culls 115 sacks @ 20c sack	23.00	
Seed 130 sacks @ 1.25 sack	162.50	1,439.50
		<u>1,439.50</u>

Total returns	1,439.50
Total returns per acre (7 acres)	205.64
Total returns per cwt. (196,350 lbs.) .....	.73
Net returns per cwt. ....	.23

Conclusions

1. There are four counties in the state which have demonstrated that 600-bushel yields are possible and at least five more which probably could demonstrate it.
2. Any of the standard varieties are capable of producing 600 bushels under proper conditions.
3. Improved seed, certified and seedplot, have produced the majority of these high yields.
4. Potatoes should be grown the first year after a legume crop. Alfalfa has given the best results.
5. Well-rotted barnyard manure will help maintain soil fertility and increase yields.
6. It pays to use more seed per acre and a larger seed piece. Seventeen sacks of seed per acre produced an average of 728.9 bushels.
7. Careful planting with properly prepared seed and a good planter are necessary to secure the perfect stand which is so essential for large yields.
8. Potato production in Colorado resolves itself into four primary phases: Rotation, preparation, seed and care. Any grower, in a late or maincrop section, who will give proper consideration to these four points can produce over 600 bushels on a measured acre from his commercial field.

Acknowledgments

The data from the 600-bushel measured acres has been furnished by County Agents T. G. Stewart of Rio Grande County, A. V. Lough of Garfield County, H. A. Ireland of Montrose County, and Max Grandy of Alamosa County, and their potato-king contest committees. The illustrations are all by T. G. Stewart, except the cover.

The cost records are supplied thru the courtesy of T. H. Summers, extension specialist in farm management.

The rules for determining the yields are practically the same as those used in Pennsylvania.

Rules for Determining Yield for 600-Bushel Club

In order to insure uniform methods in the measuring and weighing of acres of potatoes for the 600-bushel club and potato-king contests, the following rules have been drawn up.

As much accuracy as is practical is necessary if the work is to have any standing value and is to be credited by farmers and by extension and experiment station workers in other states. The fact that this is an official club sponsored by the Colorado Agricultural College necessitates accurate methods. The most accurate method would

be to dig and weigh the entire acre. In many cases this is impractical. The following regulations involve no more complications and labor than we believe consistent with a fair degree of accuracy.

Rules.—1. The area must be a single block, having regular sides in the form of a rectangle, so that the length times the width is 43,560 sq. ft.

2. Grower will designate the approximate acre to be measured. The number of rows in the designated acre, must be measured across from center to center and the number of feet divided into 43,560. This gives the length of the acre. This method does away with the difficulty of having a part row on a side and is much more accurate than the designation of a certain length of row, where width must be determined.

3. Stake and run a line across ends of acre. Fork out ends of designated rows to a length convenient for operation of digger and to provide a distinct break at the end of the acre.

4. In all cases dig both outside rows.

5. If there are 20 rows or less in the field, the 2 outside and the middle row must be dug. (3 in all).

6. If there are less than 35 and more than 20, dig the two outside and two equidistant inside rows. (4 in all).

7. For 35 to 45 rows, dig 5 equally spaced.

8. For 45 to 55 rows, dig 6 equally spaced.

9. For 55 to 65 rows, dig 7 equally spaced.

10. For 65 to 75 rows, dig 8 equally spaced.

11. In no case will corrections for poor stand or other variations be permitted.

It is recommended that weighing be done on large platform scales all at once or in two lots. In cases where this is not possible, weighing may be done on a small platform scale carried on a sled or wagon. Weighing may also be done with spring balance and pole. The accuracy of this balance should be carefully checked. Weights of all sacks and containers must be deducted.

In figuring final yield the weights of rows dug are averaged giving average weight per row. This weight times the number of rows in the acre gives the yield per acre, which, divided by 60, is the yield in bushels.

The regular report blank shall be filled out, signed by county agent, grower and witnesses and sent in at once.

All the potatoes from 10 measured feet of a representative row shall be picked and stored for exhibit at the State Seed Show at Colorado Springs.

These acres must be measured from a commercial field or seed-plot at least 5 acres in size.

REPORT BLANK
600-Bushel Club

Grower's Name

P. O. Address County.....

Total No. acres grown present season

Size of field from which acre was measured

Rotation History:

.....

Time of Plowing: Depth.....

Fertilizer: When applied Amount.....

How applied

Source of Seed

Treatment of Seed

Amount of seed used per acre

Type of planter used.....

Distance between rows..... Between hills.....

Date of Planting..... Depth.....

Times harrowed

Other pre-germination operations

Was it necessary to irrigate crops up?

No. Cultivations..... No. Irrigations.....

Height of hilling Implement used

Yield:

Variety

No. rows in acre measured

No. rows dug

Average yield per row

Official acre yield: (Pounds) (Bushels).....

Signatures:

Witnesses:.....

.....

.....

.....

County Agent:

I have taken samples in this measured acre and find that the crop runs about
.....% U. S. No. 1. Figured on the basis of U. S. No. 1, the yield from this
acre is.....lbs.bushels.

Signed:

Federal State Inspection Service.