

TABLE I

SUMMARY OF BEET HARVESTER TRIALS 1938-39

Run	Machine	Location	Speed mph	Stand	Yield T/A	Acceptably topped % by wt.	Top Tare %	Top Loss %	Combined Tare and Top Loss
1	Liberty	Calif.	2.1	107	22	74.4	7.7	1.7	9.4
2	"	Utah	2.0	70	23.5	65.4	2.85	2.76	5.61
3	Gr. West.	Calif.	2.1	107	22	89.2	5.8	2.2	8.0
4	Scott- Urschel	"	2.05	96	22.5	100.0	2.63	0.92	3.55
5	"	"	2.94	94	25.5	95.98	2.76	1.54	4.3
6	"	Colo.	2.29	102	10.4	98.56	4.28	3.30	7.58
7	"	"	2.31	84	18.2	94.0	4.87	1.11	5.98
8	"	Idaho	1.80	93	20.6	86.2	3.46	1.03	4.49
9	"	"	2.0	95	28.3	74.7	3.30	1.94	5.24
10	Variable- Cut	Calif.	2.9	110	14.8	97.12	1.6	2.4	4.0
11	"	"	2.75	95	17.7	100.0	3.4	0.62	4.02
12	"	"	2.8	91	21.2	96.74	2.3	2.16	4.46
13	"	Colo.	2.75	102	10.4	99.46	2.5	0.96	3.46
14	"	"	2.75	84	18.2	99.86	3.2	0.68	3.88
15	"	Idaho	2.75	93	20.6	99.37	2.1	1.93	4.03
16	"	"	2.75	95	28.3	98.63	1.5	1.71	3.21
17	Devey	Calif.	1.25	93	27.3	97.7	4.14	0.30	4.44
18	"	"	1.26	86	26.7	95.8	2.47	0.10	2.57
19	"	"	1.20	93	45.4	95.5	4.70	0.11	4.81
20	"	"	0.77	127	44.0	92.4	5.14	0.48	5.62
21	Roscoe Zuckerman	"	1.87	127	23.8	94.5	2.35	5.06	7.41
22	John Zuckerman	"	2.25	88	23.0	90.6	8.25	1.34	9.59
23	Pueblo	"	1.06	103	24.6	100.0	1.13	1.14	2.27

SUGAR BEET SEED THRESHER AND CLEANING EQUIPMENT

H. W. Bockstahler and Ralph F. Seamans^{1/}

(Cooperative investigations with the American Crystal Sugar Company)

Machines constructed at Rocky Ford, Colo. for threshing and cleaning the relatively small lots of sugar-beet seed as obtained in sugar-beet breeding investigations were demonstrated, as follows:

(1) Combined thresher and cleaner. This machine was devised to thresh and clean seed of individual sugar-beet plants, or small group of plants, at one handling. The outfit as devised removes the seed from the stalks by means of a rotating cylinder equipped with teeth; the seed is screened through a coarse-meshed screen onto the draper; the draper removes leaf trash and small

^{1/} Junior Plant Pathologist and Field Assistant, respectively, Division of Sugar Plant Investigations, Bureau of Plant Industry, U. S. Department of Agriculture.

pieces of seed stalk, the principle of separation being that the seed balls bounce and roll down the rotating canvas band of the draper as the sticks and trash are carried over the top of the draper band.

(2) Suction seed separator. In this apparatus, the draft from a suction-sweeper fan is utilized to elevate the sugar-beet seed and discharge it slowly in the separation chamber into an upward air draft which carries light seed to a hopper at the top of the machine, the heavier seed falling into a hopper at the base of the separation chamber. The draft is adjustable and a sample of seed can be run repeatedly through the machine with varying degrees of updraft in order to obtain the type of separation desired.

(3) Polisher for sugar-beet seed. A machine was devised to remove excess corky tissue from the seed balls and to crush light, empty seed balls. It consists essentially of (1) a helicoid feed mechanism to advance the seed from the hopper into a cylindrical chamber, and (2) a control shaft which runs the long way of the cylindrical chamber and which can be rotated slowly. The shaft is studded sparsely with peg-like teeth. As the shaft rotates, the seed balls within the chamber are ground against each other. The polished seed balls spill out of the end of the cylindrical chamber, the rate of movement being governed by the elevation angle given the cylindrical chamber.

(4) A wind blast, single-screen fanning machine for sugar-beet seed. A machine of simple construction consisting of a hopper, shaking screen, and wide paddle fan to furnish the wind blast has been devised to handle larger quantities of sugar-beet seed for which a primary, rough separation following threshing is desired. As the seeds and stems emerge from the hopper and move along the screen, the wind blast (subject to control) from the fan is introduced under the screen near the hopper feed. The larger stems tend to remain flat on the screen until they are discharged at the open end. The seed and short stems fall through the screen onto a sloped trough. The trough serves not only to collect the seed but serves to encase the shaking screen and direct the air blast.