Influence of Seed Source on Soybean Productivity[1]

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ABSTRACT

Commercial seed producers place special emphasis on the importance of high quality seed and the impact that seed quality has on the performance of a cultivar. In Kansas, a 1978 survey showed that approximately 80% of soybean [*Glycine max* (L.) Merr.] samples collected from growers to be used as planting seed were one or more years from certification, and a majority of the samples collected did not pass minimum certification standards. Because of the tendency of growers to plant nonpedigreed seed, this study was conducted to evaluate the influence of seed source on seed quality and grain yield. In 1982 and 1983, seedlots of foundation, registered, certified, and noncertified 'Crawford' and 'Williams' cultivars were collected and tested in the laboratory and in the field (three locations). All 100 samples evaluated over the 2-year period exhibited high levels of seed quality. Significant differences in yield were detected among seed-lots for Williams in both growing seasons. Reduced plant population accounted for some of this reduction in yield. Noncertified seed performed as well as certified seed in the laboratory and in the field for both cultivars across the two years tested.

Additional index words: Glycine max (L.) Merr., Seed quality, Warm germination, Accelerated aging.

INTRODUCTION

The use of certified seeds ensures not only genetic purity, but high seed quality, which should enhance profits through higher grain yields. According to the Association of Official Seed Certification Agencies (AOSCA), varietal purity is the first consideration in seed certification. But, suggested standards of seed quality and conditioning are also recommended.

The Illinois Crop Improvement Association (Smith, 1981) promoted a statewide soybean (*Glycine max* (L.) Merr.) yield contest from 1964 to 1980. Average yields for certified and noncertified seed for the 17 years were 3415 and 3157 kg ha^{-1}, respectively, however, means were not compared statistically. Smaller variations were found by Asgrow Seed Company (1982), when they conducted tests to determine the yield difference of conditioned seed and seed saved by farmers from the previous crop of the same variety. From 1978 to 1981, cooperators planted Asgrow bagged seed adjacent to home-grown seed. It was reported that yields of the Asgrow seed exceeded yields of the home-grown seed by 170 kg ha^{-1}.

In 1978, a survey was conducted to evaluate the quality of the soybean seed used by producers in Kansas (Lubbers, et al., 1980). Home-grown seed was planted 50% more frequently than certified seed in central and eastern Kansas. Certified seed was frequently used in western Kansas, where soybean acreage was the lowest. 'Williams' was the predominant cultivar statewide. Soybean seed samples collected showed a wide range in quality with only 37% of the total samples passing minimum certification requirements. However, no yield trials were conducted on collected samples; consequently, the impact that seed quality had on seed yield was not addressed. The objective of this study was to assess the impact that seed source has on seed quality and soybean grain yield.

MATERIALS AND METHODS

Two soybean cultivars, 'Williams' and 'Crawford', were selected for this study, which was conducted during the 1982 and 1983 growing seasons. Seedlots of foundation, registered, certified, and noncertified classes of seed were evaluated for each cultivar. The foundation seedlots came from the Foundation Seed Program, Department of Agronomy, Kansas State University, Manhattan, Kansas. Registered, certified, and noncertified seedlots were collected from seed producers and farmers throughout eastern Kansas. Certified seed producers and county agents were contacted at random throughout eastern Kansas to assist in collecting the seedlots at a commercial outlet, or at the farm site. The number of entries tested within each class is presented in Table 1. All seed samples evaluated in 1982 and 1983 were produced during the 1981 and 1982 growing seasons, respectively.

In 1982, seedlots under consideration were tested in the laboratory using two tests: warm germination (WG) and accelerated aging (AA). In 1983, two additional tests

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Table 1. Cultivar and class of entries used in soybean study, 1982-1983.

Seed source Cultivar	Class	Number of entries 1982	YFC[a]	1983	YFC
Crawford	Foundation	1		2	
	Registered	5		10	
	Certified	8		3	
	Noncertified	1	1	1	1
	Noncertified	5	2	5	2
	Noncertified			1	3
	Noncertified			1	4
Williams	Foundation	1		1	
	Registered	3		5	
	Certified	10		9	
	Noncertified	6	1	5	1
	Noncertified	7	2	2	2
	Noncertified	2	3	4	3
	Noncertified	1	5	3	4
	Noncertified			1	5

[a]YFC = Years from certification.

were added: sand emergence (SE) and deep sand emergence (DSE). Warm germination was evaluated using three replications of 50 seeds from each lot wrapped in three sheets of medium-weight germination paper (25 x 38 cm) and kept moist for 7 days at 27 C. Following the criteria of the AOSCA (1981), normal seedlings were counted after 7 days. For accelerated aging, all samples were placed on open screens in a growth chamber for 72 hours at 40 C and 100% relative humidity. Following the aging period, three replications of 50 seeds were tested for germination as described in the warm germination procedure. Sand emergence was tested on six replications of 10 seeds each from each seedlot, which were planted in sand 2.5 cm deep using pots of 700 cm^3 capacity. Greenhouse conditions were as follows: photoperiod: 14 hours; day temperature: 22 C; and night temperature: 20 C. All pots were irrigated daily with approximately 100 cm^3 of tap water. The percentage of normal emerged seedlings was determined for all samples 10 days after planting. Deep sand emergence tests were run using three replications of 20 seeds from each lot, planted in sand 10 cm deep in 2000 cm^3 pots in the greenhouse. All pots were irrigated daily with approximately 300 cm^3 of tap water. The final percentage of normal seedlings was determined 10 days after planting.

Field trials were conducted at three different locations each year. Williams seedlots were planted at the Powhattan, Manhattan, and Kaw Valley Experiment Stations on 19 May, 11 and 21 June in 1982, respectively; and on 28, 25, and 25 May in 1983, respectively. Crawford lots were planted at the Manhattan and Ottawa Experiment Stations and the Columbus Branch Experiment Station on 11 and 24 June and 1 July in 1982, respectively. In 1983, Crawford was planted at Manhattan, Ottawa, and a farmer's field near Pittsburgh on 25 May. All seeds were planted 3.2 cm deep in 4-row plots, 6.1 m long, in rows spaced 0.75 m apart. Planting rate for all plots was 30 seeds per meter. Stand counts were taken 4 weeks after planting on a 0.914 m section of each of the two middle rows. The middle rows of each plot were end-trimmed after maturity to a length of 4.57 m for grain harvest. All plots were harvested approximately 1 week following maturity. In 1983, the Crawford plots at the Ottawa and Pittsburgh locations experienced severe drought combined with an early frost and were not harvested.

Weed control was achieved by using alachlor (2-chloro-2', 6'-diethyl-N-(methoxymethyl) acetanilide) at planting time. Plots were kept weed free by hoeing. At the Manhattan and Kaw Valley irrigated trials, water was applied as needed. All plots were analyzed as a randomized complete block design, with three replications. Results were also analyzed as a split-plot design with the four classes (foundation, registered, certified, and noncertified seed), serving as whole plots and the seedlots as subplots. Yield variability among entries and classes were detected through Duncan's new multiple range test and Fisher's LSD tests at 5% level of probability.

Table 2. Average grain yield, plant population, and germination tests results for Crawford soybean variety during 1982 and 1983.

		1982						1983					
	Entry class no.	Yield	PP[a]	WG	AA	Entry class no.	Yield	PP	WG	AA	SE	DSE
		kg ha^{-1}	pl m^{-1}	---------%---------			kg ha^{-1}	pl m^{-1}	----------%----------			
F[b]	1	2279 a[c]	23 a-c	93 c-e	75 bc	F 1	1890 a	21 a-c	86 a	76 f	93 a	88 a-d
						2	2201 a	21 a-c	79 a	86 b-f	83 a	70 b-d
R	2	2245 a	22 b-d	95 a-d	87 ab							
	3	2250 a	21 b-d	94 b-e	91 a	R 3	2082 a	24 a-c	95 a	98 a	97 a	92 a-c
	4	2191 a	22 b-d	98 ab	95 a	4	2111 a	26 a	97 a	87 b-f	90 a	87 a-d
	5	2256 a	22 b-d	97 a-c	91 a	5	2319 a	23 a-c	93 a	95 ab	97 a	80 a-d
	6	2284 a	23 a-c	98 ab	95 a	6	1971 a	21 a-c	93 a	85 b-f	90 a	93 a-c
						7	2359 a	21 a-c	90 a	84 b-f	90 a	88 a-d
C	7	2330 a	20 d	87 e	49 d	8	2209 a	23 a-c	94 a	80 ef	100 a	67 cd
	8	2253 a	25 a	99 a	94 a	9	2200 a	23 a-c	95 a	90 a-e	97 a	88 a-d
	9	2170 a	23 a-c	95 a-d	87 ab	10	2053 a	17 a-c	95 a	88 a-e	100 a	83 a-d
	10	2238 a	23 a-c	96 a-d	97 a	11	2041 a	19 a-c	92 a	89 a-e	93 a	68 cd
	11	2198 a	20 d	93 c-e	68 c	12	2062 a	23 a-c	93 a	89 a-e	97 a	98 a
	12	2267 a	21 b-d	91 de	88 a							
	13	2259 a	24 ab	97 a-c	86 ab	C 13	2078 a	26 a	93 a	47 g	97 a	88 a-d
	14	2261 a	24 ab	99 a	91 a	14	1939 a	24 a-c	95 a	81 d-f	97 a	83 a-d
						15	2165 a	21 a-c	96 a	90 a-e	93 a	95 ab
N	15	2238 a	23 a-d	97 a-c	95 a							
	16	2321 a	22 b-d	97 a-c	91 a	N 16	2219 a	27 a	93 a	79 ef	87 a	83 a-d
	17	2259 a	23 a-c	98 ab	92 a	17	2111 a	26 a	97 a	91 a-d	97 a	83 a-d
	18	2326 a	23 a-c	96 a-d	93 a	18	2060 a	25 a-c	97 a	91 a-d	90 a	87 a-d
	19	2168 a	24 ab	97 a-c	97 a	19	1937 a	23 a-c	95 a	93 a-c	97 a	72 a-d
	20	2367 a	24 ab	98 ab	97 a	20	1922 a	25 a-c	95 a	87 b-f	97 a	90 a-c
						21	2184 a	11 a-c	93 a	84 b-f	90 a	58 d
						22	2226 a	9 c	97 a	89 a-e	93 a	73 a-d
						23	1987 a	11 a-c	97 a	82 c-f	60 b	63 cd

[a] PP = Plant population, WG = Warm germination test, AA = Accelerated aging test, SE=Sand emergence test, DSE = Deep sand emergence test.

[b] F = Foundation, R = Registered, C = Certified, and N = Noncertified seed.

[c] Means followed by the same letter within a column are not significantly different following pairwise comparisons using Duncan's DMRT test at the 5% level of probability.

Table 3. Average grain yield, plant population, and germination tests for Williams soybean variety during 1982 and 1983.

Entry class no.		1982 Yield	1982 PP[a]	1982 WG	1982 AA	Entry class no.		1983 Yield	1983 PP	1983 WG	1983 AA	1983 SE	1983 DSE
		kg ha^{-1}	pl m^{-1}	---------%---------				kg ha^{-1}	pl m^{-1}	----------%----------			
F[b]	1	3185 a-e[c]	29 ab	99 a	95 a	F	1	2277 bc	21 a-d	92 b-d	97 ab	100 a	63 c-h
R	2	3234 a-d	26 a-e	97 a-c	95 a	R	2	2279 bc	19 a-d	93 a-d	97 ab	100 a	93 ab
	3	3134 b-e	22 f-h	89 e	93 a		3	2464 a-c	22 a-d	94 a-d	96 ab	100 a	92 ab
	4	3205 a-e	22 e-h	97 a-c	92 ab		4	2367 bc	19 b-d	89 d	95 a-d	93 a-c	53 e-i
							5	2233 bc	23 ab	96 a-c	80 e	100 a	97 a
C	5	3165 a-e	24 c-h	95 a-d	95 a		6	2304 bc	23 a-c	93 a-d	99 a	100 a	83 a-d
	6	3117 c-e	24 b-h	97	a-c	93 a							
	7	3205 a-e	25 b-f	95 a-d	73 d	C	7	2536 a-c	20 a-d	96 a-c	95 a-c	97 ab	87 a-c
	8	3135 b-e	23 c-h	98 ab	95 a		8	2543 ab	20 a-d	91 cd	91 a-d	90 a-d	77 a-f
	9	3237 a-d	25 b-h	95 a-d	91 a-c		9	2419 a-c	17 d	92 c-d	85 de	97 ab	70 a-g
	10	3141 b-e	25 b-h	94 a-e	90 a-c		10	2520 a-c	21 a-d	99 a	99 a	100 a	80 a-e
	11	3112 c-e	23 c-h	92 b-e	93 a		11	2461 a-c	23 ab	96 a-c	98 ab	97 ab	73 a-g
	12	3345 a	24 c-h	97 a-c	91 a-c		12	2292 bc	23 a-c	95 a-c	95 a-c	93 a-c	78 a-f
	13	3149 b-e	25 b-f	93 a-e	91 a-c		13	2267 bc	21 a-d	96 a-c	91 a-d	93 a-c	33 i
	14	3149 b-e	25 b-f	95 a-d	95 a		14	2466 a-c	21 a-d	96 a-c	93 a-d	90 a-d	95 ab
							15	2434 a-c	21 a-d	97 ab	93 a-d	97 ab	95 ab
N	15	3190 a-e	25 b-f	96 a-d	95 a								
	16	3087 c-e	24 c-h	95 a-d	91 a-c	N	16	2402 a-c	22 a-d	96 a-c	80 e	97 ab	88 a-c
	17	3266 a-c	27 a-c	97 a-c	99 a		17	2383 a-c	20 a-d	97 ab	89 b-d	83 cd	68 b-g
	18	3152 b-e	23 c-h	95 a-d	50 e		18	2518 a-c	22 a-d	99 a	94 a-c	100 a-c	63 c-h
	19	3144 b-e	25 b-g	96 a-d	96 a		19	2304 bc	24 a	96 a-c	91 a-d	97 ab	93 ab
	20	3305 ab	23 c-h	91 c-e	91 a-c		20	2375 bc	22 a-d	99 a	99 a	100 a	75 a-g
	21	3217 a-e	27 a-d	92 b-e	94 a		21	2357 bc	21 a-d	98 ab	96 ab	93 a-c	80 a-e
	22	3037 e	20 h	93 a-e	68 d		22	2264 bc	18 b-d	97 a-b	91 a-d	100 a	45 hi
	23	3106 c-e	25 b-h	97 a-c	74 d		23	2459 a-c	19 a-d	97 ab	91 a-d	97 ab	57 d-i
	24	3098 c-e	21 g-h	93 a-e	74 d		24	2345 bc	22 a-d	97 ab	89 b-d	80 d	53 f-i
	25	3074 de	22 d-h	89 e	78 cd		25	2384 a-c	22 cd	97 ab	93 a-d	100 a	57 d-i
	26	3149 b-e	25 b-f	95 a-d	92 a-c		26	2378 bc	20 a-d	95 a-c	87 c-e	93 a-c	48 g-i
	27	3229 a-d	25 b-h	95 a-d	91 a-c		27	2429 a-c	21 a-d	97 ab	91 a-d	87 b-d	73 a-g
	28	3208 a-e	30 a	99 a	96 a		28	2691 a	23 ab	96 a-c	87 c-e	93 a-c	47 i
	29	3273 a-c	25 b-f	98 ab	96 a		29	2229 bc	22 a-d	94 a-d	91 a-d	97 ab	87 a-d
	30	3230 a-d	25 b-f	96 a-d	79 b-d		30	2217 c	18 cd	95 a-c	89 b-d	87 b-d	97 a

[a] PP = Plant population, WG = warm germination test, AA = Accelerated aging test, SE = Sand emergence test, DSE = Deep sand emergence test.

[b] F = Foundation, R = Registered, C = Certified, and N = Noncertified seed.

[c] Means followed by the same letter are not significantly different following pairwise comparison using Duncan's DMRT test at 5% level of probability.

RESULTS AND DISCUSSION

The laboratory tests indicated that all 100 samples evaluated over the 2-year period possessed high levels of seed quality (Tables 2 and 3). In 1982 and 1983, the warm germination tests of only three Crawford entries fell below 90% (entry number 7 in 1982 and 1 and 2 in 1983). Warm germination for all Williams seedlots were equal to or exceeded 89% in both years. The range in accelerated aging was greater than that for warm germination, but AA scores tended to be quite high. Seventeen out of the 20 Crawford samples had an accelerated aging score that was equal to or exceeded 80% in both seasons. For Williams, 23 of 30 and all 30 samples were equal to or exceeded 80% in 1982 and 1983, respectively. Only one entry (Crawford #23) obtained less than 80% emergence in the sand emergence (SE) test, but the deep sand emergence (DSE) test provided a wide range of emergence values in both cultivars.

In general, no significant correlations existed among any of the laboratory tests, except between AA and WG, for the Crawford seedlots in 1982 ($r=0.83^{**}$, $n=20$) and between WG and SE ($r=0.52^{**}$, $n=23$) for Crawford in 1983.

Differences in yield and plant population among locations were significant at the 1% level of probability for both cultivars and years (Table 4). In 1983, Crawford plots were harvested only at Manhattan, because of early freeze damage and bad weather conditions at the other two locations. The yield at the irrigated locations (Manhattan and Kaw Valley) exceeded the yield at the dryland trials (Powhattan, Columbus, and Ottawa). Nevertheless, no significant entry x location interactions were detected for seed yield or plant population for either cultivar. When averaged across all locations, differences in yield were detected among seedlots for Williams in both growing seasons (Table 3), but no differences in yield were found among the Crawford seedlots in either season (Table 2). Population differences among entries were significant for both Crawford and Williams in 1982, but only for Williams in 1983. On the average, both cultivars in 1982 and 1983 had acceptable plant densities, which ranged between 20 to 30 plants m^{-1}. In 1983, entries 10 and 11 of Crawford and five entries of Williams attained between 17 and 19 plants m^{-1}.

The results obtained when field and laboratory data were analyzed as split-plot design with four classes of seedlots are shown in Table 5. Differences in seed yield and plant population were not detected at the 5% level of probability among seed classes in either season for Crawford or for Williams in 1983. In 1982, the plant population of foundation Williams (29 pl m^{-1}) was significantly higher than the other three classes but represented only one seedlot. The difference of 108 kg ha^{-1} between registered and certified Williams was significant in 1983 at the 10% level of probability. In 1982, no differences in the seed quality tests were noted among the seed classes. During the second year, the WG for the foundation and registered Williams seedlots were slightly (but significantly) lower than the other two classes. The three certified seedlots of Crawford had the lowest average AA score (72%) which was due to 47% AA for entry 13 (Table 2). Scores of the three other laboratory tests for entry 13 were above average. However, the average of the Williams certified seedlots exceeded the yield of the noncertified seed by only 4 and 8 kg ha^{-1} in 1982 and 1983, respectively.

The three Williams seedlots that yielded less than 3100 kg ha^{-1} in 1982, also had the lowest plant populations (20-22 pl m^{-1}) (Table 3). These seedlots also showed a poor performance in the AA test. In 1983, entry 30 of Williams (noncertified) had the lowest yield and the second lowest average plant population. There were significant correlations of $r=.36^{*}$ and $r=.37^{*}$ ($n=30$) between seed yield and plant population for the Williams seedlots evaluated in 1982 at Manhattan and Powhattan, respectively. No other positive correlation between seed

Table 4. Average plant population and yield for each location across all seedlots of Crawford and Williams.

Locations	1982 Yield	1982 PP[a]	1983 Yield	1983 PP
	kg ha^{-1}	pl m^{-1}	kg ha^{-1}	pl m^{-1}
		CRAWFORD		
Manhattan	2752 a[b]	26 a	2103	23
Columbus	1470 c	20 b		
Ottawa	2547 b	21 b		
Average	2253	23		
		WILLIAMS		
Manhattan	3503 a	24 b	2811 b	25 a
Kaw Valley	3502 a	27 a	3390 a	22 b
Powhattan	2528 b	22 c	930 c	16 c
Average	3176	25	2386	21

[a] PP = Plant population.
[b] Means followed by the same letter within a column and cultivar are not significantly different according to pairwise comparisons using Duncan's DMRT test at 5% level of probability.

Table 5. Average laboratory results and field plant population, and grain yield across all Crawford and Williams seedlots.

Classes	1982 NE[a]	1982 Yield	1982 PP	1982 WG	1982 AA	1983 NE	1983 Yield	1983 PP	1983 WG	1983 AA	1983 SE	1983 DSE
		kg ha^{-1}	pl m^{-1}	---%---			kg ha^{-1}	pl m^{-1}	----------%----------			
CRAWFORD												
Foundation	1	2279 a[b]	23 a	93 a	75 a	2	2045 a	21 a	88 a	81 a	88 a	79 a
Registered	5	2245 a	22 a	96 a	92 a	10	2141 a	22 a	94 a	88 a	95 a	85 a
Certified	8	2226 a	22 a	94 a	82 a	3	2060 a	24 a	94 a	72 b	96 a	89 a
Noncertified	6	2280 a	23 a	97 a	94 a	8	2082 a	23 a	94 a	87 a	89 a	76 a
WILLIAMS												
Foundation	1	3185 a	29 a	93 a	95 a	1	2277 a	21 a	92 b	97 a	100 a	63 a
Registered	3	3190 a	23 b	89 a	93 a	5	2329 a	21 a	93 b	93 a	99 a	84 a
Certified	10	3175 a	24 b	90 a	91 a	9	2437 a	21 a	95 a	93 a	94 a	76 a
Noncertified	16	3174 a	24 b	90 a	87 a	15	2382 a	21 a	97 a	91 a	94 a	67 a

[a] NE = Number of entries, PP = plant population, WG = warm germination, AA = accelerated aging, SE = sand emergence, DSE = deep sand emergence.

[b] Means followed by the same letter within a column and cultivar are not significantly different following pairwise comparisons using Fisher's LSD test at 5% level of probability.

yield and plant population existed in the other environments for either cultivar. This relatively weak relationship between plant population and yield was consistent with the reported insensitivity of soybean yields to a wide range of plant populations (Tanner and Hume, 1978), however, significant differences in yield, among Williams seedlots, could be at least partially attributed to reduced plant populations.

Laboratory tests showed higher correlations with plant population than with yield. None of the tests were significantly correlated with seed yield. In 1982, both WG and AA were significantly correlated with plant population ($r=.55^*$ and $r=.45^*$; $n=30$) for Williams and ($r=.76^{**}$ and $r=.63^*$; $n=20$) for Crawford, respectively. The following season WG and AA were not correlated with plant population, but SE and DSE were significantly correlated ($r=.44^*$ and $r=.59^{**}$; $n=23$) with plant population for Crawford, respectively. Numerous studies have failed to identify a specific test or an array of tests that predict field emergence in a wide range of environments (Johnson and Wax, 1978; Tekrony and Egli, 1977; and Yaklick and Kulik, 1979).

Although these results failed to associate a yield advantage with a particular seed class or seed source as discussed by Smith (1981) and Asgrow Seed Co. (1982), they are not surprising. All 100 samples evaluated over the 2-year period exhibited relatively high levels of seed quality. In general, these seedlots were capable of producing adequate populations in the range of seedbed conditions that were experienced in this study. With the exception of the Foundation seed, seedlots for the seed classes were collected across the state to represent a cross section of factors which influence seed quality such as environmental conditions, mechanical damage, and disease problems. This reduced the probability that factors that could enhance or diminish seed quality would be associated with a specific class of seed. The pronounced effects of environment, harvesting operations, storage and seed conditioning on seed quality (Tekrony et al., 1987), while not favoring a particular class, could have contributed to the differences in yield observed among the Williams seedlots.

According to a 1978 Kansas Seed Survey (Lubbers et al., 1980), only 19% of the seed planted in the state of Kansas was certified, registered, or foundation. While noncertified seed performed as well as certified seed in the laboratory and the field for both cultivars, soybean producers contributing the seedlots evaluated in this two-year study intended to plant high quality seed which would not have a detrimental impact on seed yield.

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Crop Management and Seed Harvesting of *Arachis pintoi* Krap. et Greg. *nom. nud.*[1]

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ABSTRACT

***Arachis pintoi* Krap. et Greg. *nom. nud.* is a stoloniferous, perennial legume that is showing promise as a forage and soil conservation ground cover. Conventional peanut harvesting techniques have been inappropriate due to the sward-forming nature of the plant, and asynchronous seed-set.**

This paper describes a successful management procedure for an *Arachis pintoi* seed crop and a method for separating seed from the soil. The crop is grown in sandy soil. During late winter, all top material is removed through grazing and/or mowing, and the area rotary-hoed to a depth of 10 cm. Pods are separated from the soil by sieving. A prototype seed cleaner has been constructed to test a method of separation which will be incorporated into a commercial harvester. The machine comprises two coaxial, counter-rotating cylindrical screens, the outer one retaining the seed and conducting it to a collection receptacle. Yields of about 1 tonne of seed-in-pod ha^{-1} have been obtained.

Additional index words: **peanut, wild-type *Arachis*, seed set, seed yield, seed harvesting.**

INTRODUCTION

Arachis pintoi Krap. et Greg. *nom. nud.* is indigenous to Brazil, with distribution apparently restricted to the valleys of the Jequitinhonha, Sao Francisco and Tocantins Rivers (C.E. Simpson, Texas A & M University, Stephenville, pers. comm.). This species was initially collected by G.C.P. Pinto in 1954 near the mouth of the Jequitinhonha River (Gregory et al., 1973). This original genotype was introduced into Australia from the USA in 1972 (Anon., 1973). It has been catalogued as PI 338314 in the USA, CPI 58113 in Australia and CIAT 17434 in Colombia. After extensive evaluation, CPI 58113 was released for commercial use in 1987 and will be recommended for registration as cultivar Amarillo by the Queensland and New South Wales Herbage Plant Liaison Committees.

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