

PROJECT REPORT

JAMIE L. WHITTEN PLANT MATERIALS CENTER

No. 4

Coffeeville, Mississippi

1992

SEED PRODUCTION AND VARIATION AMONG SELECTED TRAILING WILDBEAN ACCESSIONS

James A. Wolfe

ABSTRACT

Seed production and other characteristics for 10 accessions of trailing wildbean (*Strophostyles helvola*) were determined. No accession was clearly outstanding. Within each accession, plants were variable although a degree of similarity existed. Plants of five accessions possessing desirable traits were selected for a future work because they showed potential for development of a superior cultivar by breeding and selecting for more desirable features.

INTRODUCTION

An assembly of 32 accessions of trailing wildbean (*Strophostyles* spp.) was evaluated at the Coffeeville PMC from 1985 through 1988. The less robust *S. leiosperma* was easily eliminated from contention. None of the other accessions identified as *S. helvola*, *S. umbellata*, or *Strophostyles* sp. was clearly superior. However, considerable variation was observed indicating that enough diversity existed within accessions to allow selection of a superior cultivar. On the basis of vigor, 10 accessions were selected for additional studies (Wolfe et al, 1989). The accessions were:

PI-434455 (*S. helvola*) collected in Washington Co., MS.
9008290 (*S. helvola*) collected in Colorado Co., TX.
9013735 (*S. umbellata*) obtained through National PMC.
9017145 (*S. helvola*) obtained through National PMC.
9017146 (*S. helvola*) obtained through National PMC.
9021718 (*S. helvola*) collected in Washington Co., MS.
9021719 (*S. helvola*) collected in Crittenden Co., AR.
9028588 (*S. sp.*) collected in Yalobusha Co., MS.
9028592 (*S. helvola*) collected in Washington Parish, LA.
9028599 (*S. helvola*) collected in Yalobusha Co., MS

Because more information was needed to reduce this number of accessions for advanced evaluations, some seeds of each accession were provided to Wood Glen Experimental Gardens in Jackson, MS, for more detailed studies concerning seed production and classification.

MATERIALS AND METHODS

Seeds of the 10 accessions were sown in greenhouse trays into a commercial potting mixture with fertilizer added on March 18, 1989. When seedlings were large enough, individual plants were transferred to multi-pot containers (2" x 2" x 2.5") containing the potting mixture. As well as could be done, plants of nearly equal size were selected from each accession and placed in a space planting on May 25. The space planting consisted of three replications with one plant of each accession per plot. Accessions were randomly arranged and placed on 36 inch centers. So that individual plant identity could be maintained, vines were tied to 5-foot stakes to prevent entanglement. Except for establishment, plants received no water except normal rainfall. Weeds were controlled by hoeing and no fertilizer was added.

Plants were observed frequently and each row was evaluated for maturity, attractiveness, and undesirable features every two weeks from July 28 to October 21. Plant vigor; abundance of foliage, flowers, and fruits; and resistance to diseases and insects were visually determined using the standard rating system given in the National Plant Materials Manual where 1 = excellent, 3 = good, 5 = fair, and 7 = poor (USDA, 1984). At the same time a taxonomic study was conducted since the species of one accessions had not been determined. All of the 10 accessions were identified as *S. helvola* (Fernald, 1950).

As pods matured, they were removed by surgical scissors and placed in a cloth bag to prevent loss from shattering. At the end of each week, pods and seeds for each plant were counted. Immature and insect-damaged seeds were counted separately and discarded. Good seeds produced by each plant were weighed at the end of the harvest period.

RESULTS AND DISCUSSION

Most plants were robust and vigorous, and all showed good resistance to insect and disease damage. All showed excellent resistance to drought. None wilted even when plants in nearby lawns and gardens were greatly stressed. The worst problems encountered were seed shattering and indeterminate seed production (Table 1). Although plants in most accessions showed similarity, variation among plants within an accession was common. Differences in leaf, pod, and seed size were noted. Leaf shape ranged from broadly ovate to lanceolate, with or without lobes. Some

Table 1. Summary of evaluations for trailing wildbean at Jackson, Mississippi (1989).

Accession Number	Plant Rep	Veg.* Vigor	Resistance*			Flowering date			Seed Maturity		
			Dis	Ins	Sha	First	Peak	Last	First	Peak	Last
434455	A	4	3	3	5	08/11	09/09	10/07	09/01	10/07	11/04
	B	5	2	2	5	08/26	09/09	09/23	09/16	10/07	10/28
	C	3	2	2	3	08/26	09/09	09/23	09/09	10/14	11/04
9008290	A	2	2	3	1	08/26	09/09	10/07	09/01	10/14	11/11
	B	1	2	3	5	07/28	08/26	09/23	09/09	10/14	11/11
	C	2	2	2	5	08/26	09/23	10/07	09/16	10/28	11/25
9013735	A	3	2	3	5	07/28	08/26	09/23	08/26	09/09	11/18
	B	2	3	2	7	07/28	08/26	09/23	08/26	09/09	11/18
	C	2	2	3	5	08/11	08/26	10/21	08/26	09/16	11/18
9017145	A	5	2	2	7	07/28	08/11	09/23	08/11	09/01	11/11
	B	3	2	2	5	07/28	08/11	09/23	08/26	09/01	11/18
	C	3	3	4	3	07/28	08/26	09/23	08/18	09/16	11/04
9017146	A	2	2	3	5	08/11	08/26	09/23	09/01	09/16	11/18
	B	3	2	3	5	07/28	08/11	09/09	08/11	09/01	11/18
	C	2	3	2	4	08/11	08/26	09/23	09/01	09/16	11/04
9021718	A	1	3	2	7	08/11	08/26	09/23	09/01	09/23	11/25
	B	6	2	2	5	08/26	08/26	09/23	09/09	09/23	10/28
	C	3	2	2	3	08/11	08/26	09/23	09/01	09/16	11/11
9021719	A	3	2	2	5	08/11	08/26	09/23	08/26	09/16	11/11
	B	2	1	2	5	08/11	08/26	10/07	09/16	10/14	11/18
	C	1	2	2	4	08/11	08/26	10/07	09/01	09/16	11/25
9028588	A	6	5	3	5	08/26	09/09	09/23	09/01	09/23	11/04
	B	6	3	2	3	08/26	09/09	09/23	09/09	10/07	11/04
	C	4	2	2	3	08/26	09/09	09/23	09/09	10/07	11/04
9028592	A	5	3	2	5	08/11	08/26	09/23	08/26	09/16	11/18
	B	1	1	2	5	08/11	09/09	09/23	09/16	10/07	11/25
	C	2	2	3	7	08/26	08/23	10/07	09/01	10/07	11/25
9028599	A	4	2	2	7	08/26	09/09	09/23	09/09	10/14	11/11
	B	3	2	2	7	08/26	09/09	09/23	09/09	10/14	10/28
	C	5	3	3	1	08/26	09/09	09/23	09/09	10/07	10/28

* Value represents mode for evaluations from July 28 to Oct. 21; Rating 1 - 9; 1 best.

plants had more slender pods and smaller seeds than others (Table 2). Some plants averaged less than four seeds per pod while others had seven. Seeds were much larger on some plant than others with weights ranging from 0.03 to 0.07 g per seed. One plant of accession 9017145 produced beans with an average weight of 0.085 g, nearly as large as the

Table 2. Variation in leaf, pod, and seed characteristics for plants of trailing wildbean at Jackson, Mississippi (1989).

Accession Number	Plant Rep	Leaflet*form		Leaflet*size (cm)		Pod size (cm)		Seeds per pod	Seed wt (gram)	Seed Epitesta
		Shape#	Lobes	Length	Width	Length	Width			
434455	A	Ovate	None	6.7	5.2	9.0	0.7	5.31	0.050	Dense
	B	Ovate	Few	5.0	3.6	7.0	0.6	4.47	0.053	Dense
	C	Ovate	None	5.2	3.2	7.0	0.7	4.37	0.045	Dense
9008290	A	Bovate	Few	6.5	5.1	8.0	0.8	7.00	0.045	Dense
	B	Ovate	Few	6.0	4.5	8.5	0.7	7.05	0.047	Dense
	C	Ovate	Few	6.5	4.8	8.8	0.8	6.71	0.046	Dense
9013735	A	Lance	Few	7.5	5.0	8.4	0.7	5.61	0.053	Sparse
	B	Lance	Few	6.5	3.7	7.5	0.8	4.44	0.054	Sparse
	C	Lance	Common	6.0	3.6	7.0	0.7	5.24	0.054	Sparse
9017145	A	Ovate	Few	6.0	4.5	8.9	0.8	3.82	0.085	Dense
	B	Ovate	Common	5.7	4.0	9.0	0.8	4.07	0.069	Dense
	C	Lance	Common	5.0	3.0	8.4	0.7	5.33	0.029	Dense
9017146	A	Ovate	None	7.7	5.0	7.3	0.8	4.61	0.065	Moderate
	B	Bovate	None	5.5	4.2	7.8	0.8	3.87	0.059	None
	C	Ovate	None	7.5	5.7	7.5	0.7	4.33	0.068	Moderate
9021718	A	Bovate	None	6.4	5.2	9.0	0.8	5.50	0.050	Dense
	B	Lance	Common	5.3	3.1	8.4	0.7	5.22	0.050	Dense
	C	Bovate	None	7.0	5.5	7.2	0.8	4.99	0.042	Dense
9021719	A	Lovate	None	8.0	5.7	8.2	0.8	4.96	0.065	Dense
	B	Ovate	None	5.8	4.4	8.6	0.6	5.41	0.046	Dense
	C	Ovate	Few	7.2	5.4	7.0	0.8	4.56	0.060	Dense
9028588	A	Lovate	Few	5.6	3.6	7.4	0.7	5.70	0.062	None
	B	Lance	Few	5.7	3.7	7.0	0.7	6.11	0.053	None
	C	Lovate	Few	7.5	4.4	6.8	0.7	5.71	0.057	None
9028592	A	Ovate	None	6.5	4.7	8.0	0.7	5.42	0.049	Dense
	B	Ovate	None	6.5	4.3	9.0	0.7	5.38	0.046	Dense
	C	Bovate	None	6.5	5.0	8.7	0.7	5.18	0.044	Dense
9028599	A	Ovate	Few	6.4	4.5	7.8	0.7	6.23	0.053	Moderate
	B	Ovate	Few	7.1	4.6	7.8	0.7	5.98	0.048	Moderate
	C	Lovate	Few	6.0	4.1	7.6	0.6	6.27	0.048	Moderate

* Middle leaflet used for determination.

For shape: Bovate = broadly ovate, Lance = lanceolate, Lovate = lanceolate ovate.

garden bean (*Phaseolus vulgaris*). While seeds of most plants were covered by a gray, scruffy coating (epitesta) giving

the appearance of being molded, a few plants produced very attractive black, shiny seeds. Although not a good seed producer (Table 3), seeds from one plant of accession 9028588 were selected for future study because of the possibility of crossing it with one of the good producers to produce an more appealing cultivar to market.

Table 3. Pod and seed production for trailing wildbean at Jackson, Mississippi (1989).

Accession Number	Plant (Rep)	Pods Total	Seed harvest		Faulty seeds			Seed summary	
			Total	Gm.	Immature	Insect	Total	Per gram	Per pound
434455	A	396	1869	92.7	126	108	2103	20.16	9200
	B	440	1859	97.6	77	30	1966	19.05	8700
	C	442	1889	85.0	35	9	1933	22.22	10100
9008290	A	426	2670	119.4	249	61	2980	22.36	10200
	B	328	2163	102.0	115	33	2311	21.21	9600
	C	438	2625	119.9	275	39	2939	21.89	10000
9013735	A	405	2175	115.3	92	4	2271	18.86	8600
	B	380	1490	81.0	160	38	1688	18.40	8400
	C	356	1614	86.8	223	29	1866	18.59	8500
9017145	A	277	985	84.0	48	26	1059	11.73	5300
	B	338	1283	88.2	58	36	1377	14.55	6600
	C	244	1038	30.2	235	27	1300	34.37	15600
9017146	A	702	3016	197.2	178	39	3233	15.29	7000
	B	372	1345	79.9	79	17	1441	16.83	7600
	C	410	1666	113.4	70	38	1774	14.69	6700
9021718	A	767	3944	196.1	190	88	4222	20.11	9100
	B	308	1476	73.6	107	24	1607	20.05	9100
	C	362	1686	70.4	77	44	1807	23.95	10900
9021719	A	515	2451	159.7	86	15	2552	15.35	7000
	B	653	3193	146.8	262	78	3533	21.75	9900
	C	554	2248	135.0	223	53	2524	16.65	7600
9028588	A	197	1090	67.2	31	1	1122	16.22	7400
	B	283	1402	74.7	282	46	1730	18.77	8500
	C	291	1529	86.4	113	20	1662	17.70	8000
9028592	A	293	1457	71.2	87	44	1588	20.46	9300
	B	687	3461	160.7	177	58	3696	21.54	9800
	C	486	2321	102.6	132	65	2518	22.62	10300
9028599	A	349	1987	105.3	166	23	2176	18.87	8600
	B	335	1826	87.3	149	27	2002	20.92	9500
	C	158	890	42.9	85	16	991	20.75	9400

Flowering and seed ripening occurred over a period of about 2 months. Flowering was first noted on July 28 and many plants continued to bloom until late September or early October. Pods matured over a period of several weeks, and early seed maturity did not seem to correlate well with early flowering (Table 1). Although seeds matured over a period of several weeks, a peak was noted for each when from 30 to 60 percent of them were ripe and could probably be harvested mechanically. A dip was noted for the September harvest when a period of cool, rainy weather slowed ripening, but hot and dry weather returned the following week producing a secondary peak harvest for October 7. Light frost on October 20 injured plants and all were dead by mid-November. However, green pods continued to ripen until the last harvest on November 25 (Table 4).

Based primarily on seed production, Five plants from the 10 accessions were selected to be experimental lines. One plant with black, shiny seeds that were more attractive than the usual ones with gray, moldy-looking epistemes was selected for appearance rather than production. Accession 9008290 was selected on the assumption that fewer seeds of the late maturing line would shatter if harvest came after vines were killed by frost. These experimental lines may be crossed and selected to obtain a more attractive cultivar for commercial production.

CONCLUSIONS

No accession was shown to be definitely superior because plants were distinctly variable. Therefore, individual plants showing desirable characteristics were chosen. Plants of five of the 10 accessions were selected and seeds were saved for future study. Seed production was the basis for selecting most plants; however, attractiveness of seeds was given some consideration. Selections were:

<u>Accession</u>	<u>Plant</u>	<u>Basis for selection</u>
9017146	A	Seed production; best plant (197.2 g), accession with 2nd best average.
9021718	A	Seed production; 2nd best plant (196.1 g), accession with 4th best average.
9021719	A	Seed production; 4th best plant (159.7 g); accession with best average seed production.
9008290	C	Seed production and late maturity, accession with 3rd best average, little variation.
9028592	B	Attractive black seeds and little variation in accession; best seed production for accession.

Progeny of these five plants may serve as experimental lines which may be crossed and/or further selected to produce plants with outstanding characteristics for cultivar release. Compared to other species of legumes such as

Table 4. Pod and seed count for weekly harvests of trailing wildbeans at Jackson, Mississippi (Aug. 11 - Nov. 25, 1989).

Accession	Date	Rep A		Rep B		Rep C		Total	Number pods	Good seed	Faulty seeds	Total seeds	Number pods	Good seed	Faulty seeds	Total seeds	Number pods	Good seed	Faulty seeds	Total seeds		
		Number pods	Good seed	Immature	Insect	Number pods	Good seed														Immature	Insect
434455	09/01	3	17	0	3	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	09/09	11	60	2	10	72	0	0	0	0	0	0	2	12	0	0	2	12	0	0	12	
	09/16	15	63	6	20	89	9	44	2	0	46	7	37	0	0	0	7	37	0	0	37	
	09/23	56	300	20	23	343	57	287	1	5	293	49	255	1	1	1	257	49	255	1	257	
	09/30	46	166	4	11	181	69	294	3	10	307	39	182	7	4	4	193	39	182	7	193	
	10/07	72	329	19	19	367	129	558	7	2	567	132	553	11	4	4	568	132	553	11	568	
	10/14	45	195	14	13	222	141	571	37	7	615	159	673	11	0	0	684	159	673	11	684	
	10/21	51	296	15	3	314	21	68	17	6	91	46	154	5	0	0	159	46	154	5	159	
	10/28	69	326	28	4	358	14	37	10	0	47	7	21	0	0	0	21	7	21	0	21	
	11/04	28	117	18	2	137	0	0	0	0	0	1	2	0	0	0	2	1	2	0	2	
	TOTAL		396	1869	126	108	2103	440	1859	77	30	1966	442	1889	35	9	1933	442	1889	35	9	1933
	9008290	09/01	1	9	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		09/09	3	11	8	5	24	1	10	0	0	10	0	0	0	0	0	0	0	0	0	0
		09/16	5	36	2	0	38	17	134	1	6	141	9	73	2	4	79	9	73	2	4	79
09/23		12	100	5	3	108	37	273	11	10	294	12	99	3	1	103	12	99	3	1	103	
09/30		12	96	3	2	99	26	197	5	7	209	11	92	2	2	96	11	92	2	2	96	
10/07		60	415	28	18	461	51	370	13	4	387	66	479	22	6	507	66	479	22	6	507	
10/14		142	946	54	12	1012	73	477	13	2	492	76	521	26	7	554	76	521	26	7	554	
10/21		52	355	14	4	373	43	276	17	3	296	45	298	23	0	321	45	298	23	0	321	
10/28		83	473	64	10	547	59	327	34	0	361	111	620	85	17	722	111	620	85	17	722	
11/04		40	186	47	4	237	16	81	16	1	98	66	302	62	2	366	66	302	62	2	366	
11/11		16	45	24	3	72	5	18	5	0	23	23	76	19	0	95	23	76	19	0	95	
11/18		0	0	0	0	0	0	0	0	0	0	0	9	37	12	49	0	37	12	0	49	
11/25		0	0	0	0	0	0	0	0	0	0	0	10	28	19	47	0	28	19	0	47	
TOTAL			426	2670	249	61	2980	328	2163	115	33	2311	438	2625	275	39	2939	438	2625	275	39	2939

Table 4 (continued)

Accession	Date	Rep A			Rep B			Rep C			Total		
		Number pods	Good seed	Faulty seeds Immature Insect	Total seeds	Number pods	Good seed	Faulty seeds Immature Insect	Total seeds	Number pods		Good seed	Faulty seeds Immature Insect
9013735	08/26	10	64	0	64	5	29	0	29	1	7	0	7
	09/01	36	248	3	252	49	218	37	259	22	147	1	148
	09/09	97	618	4	622	124	562	31	605	53	332	6	338
	09/16	90	514	26	540	106	416	25	449	127	692	22	718
	09/23	34	132	5	137	53	155	30	190	47	179	44	227
	09/30	12	54	6	60	11	32	2	36	38	102	46	156
	10/07	50	234	14	248	11	26	12	44	33	68	67	140
	10/14	26	140	5	147	12	26	22	49	13	27	14	48
	10/21	31	125	13	138	1	3	0	3	11	35	12	48
	10/28	14	33	12	46	4	12	0	12	2	4	0	4
	11/04	4	11	3	14	2	6	0	6	6	16	4	20
	11/11	0	0	0	0	0	0	0	0	1	3	2	5
	11/18	1	2	1	3	2	5	1	6	2	2	5	7
TOTAL		405	2175	92	2271	380	1490	160	1688	356	1614	223	1866
9017145	08/11	2	9	2	12	0	0	0	0	0	0	0	0
	08/18	17	38	21	61	0	0	0	0	2	12	0	12
	08/26	49	215	1	221	38	161	18	185	1	8	0	8
	09/01	68	276	0	280	92	410	10	426	10	41	18	59
	09/09	22	64	7	74	87	330	4	344	16	68	26	94
	09/16	9	26	0	31	23	79	3	88	57	286	60	356
	09/23	8	19	2	21	11	30	0	31	32	134	31	166
	09/30	3	13	0	13	3	11	0	11	30	108	33	149
	10/07	18	60	2	62	14	53	0	55	31	141	11	155
	10/14	41	142	1	145	24	90	2	95	24	111	13	127
	10/21	25	86	3	89	27	76	7	85	17	66	17	83
	10/28	13	34	6	42	12	29	9	38	21	57	18	77
	11/04	1	1	0	3	4	6	5	11	3	6	8	14
	11/11	1	2	3	5	0	0	0	0	0	0	0	0
	11/18	0	0	0	0	3	8	0	8	0	0	0	0
TOTAL		277	985	48	1059	338	1283	58	1377	244	1038	235	1300

Table 4 (continued)

Accession	Date	Rep A			Rep B			Rep C			Total		
		Number pods	Good seed	Faulty seeds Immature Insect	Total seeds	Number pods	Good seed	Faulty seeds Immature Insect	Total seeds	Number pods		Good seed	Faulty seeds Immature Insect
9021719	08/26	1	7	0	7	0	0	0	0	0	0	0	0
	09/01	15	80	6	90	0	0	0	0	4	28	0	28
	09/09	63	374	5	380	0	0	0	0	6	39	4	43
	09/16	101	559	11	570	24	149	6	165	135	717	6	731
	09/23	85	367	3	374	34	213	7	230	114	523	16	544
	09/30	33	128	0	128	27	151	13	170	81	341	6	350
	10/07	60	236	10	249	111	598	16	636	84	254	63	333
	10/14	33	167	6	173	186	1012	48	1075	40	98	31	136
	10/21	27	130	6	136	121	553	51	608	15	47	16	63
	10/28	53	238	12	253	96	373	53	436	17	58	14	76
	11/04	32	135	15	150	38	97	45	143	17	36	30	66
	11/11	12	30	12	42	5	16	4	20	21	53	21	84
	11/18	0	0	0	0	11	31	19	50	7	20	7	27
	11/25	0	0	0	0	0	0	0	0	13	34	9	43
	TOTAL	515	2451	86	2552	653	3193	262	3533	554	2248	223	2524
9028588	09/01	2	14	0	14	0	0	0	0	0	0	0	0
	09/09	1	8	0	8	1	7	0	7	3	14	0	14
	09/16	25	194	0	194	7	51	1	54	8	48	4	52
	09/23	32	199	3	202	23	166	2	168	28	180	4	184
	09/30	16	98	3	101	28	162	10	174	22	128	0	128
	10/07	37	188	2	190	117	642	80	742	100	534	44	585
	10/14	47	255	7	262	60	259	79	352	102	533	35	578
	10/21	13	64	3	67	31	95	68	169	24	83	21	107
	10/28	12	36	5	41	11	14	27	41	2	6	0	6
	11/04	12	34	8	43	5	6	15	23	2	3	5	8
	TOTAL	197	1090	31	1122	283	1402	282	1730	291	1529	113	1662

Table 4 (continued)

Accession	Date	Rep A		Rep B		Rep C		Total							
		Number pods	Good seed	Faulty seeds Immature Insect	Total seeds	Number pods	Good seed		Faulty seeds Immature Insect	Total seeds					
9028592	08/26	1	5	0	0	0	0	0							
	09/01	5	34	0	0	0	0	7							
	09/09	26	157	3	12	0	0	57							
	09/16	53	315	7	4	35	205	334							
	09/23	51	264	4	2	105	606	555							
	09/30	34	162	8	5	54	308	328							
	10/07	45	222	3	1	170	881	581							
	10/14	26	127	2	1	137	654	222							
	10/21	15	62	7	4	85	410	66							
	10/28	19	70	18	10	71	297	114							
	11/04	10	25	21	3	17	59	29							
	11/11	7	12	14	2	6	25	20							
	11/18	1	2	0	0	6	15	0							
	11/25	0	0	0	0	1	1	4							
TOTAL	293	1457	87	44	1588	687	3461	177	58	3696	486	2321	132	65	2518
9028599	09/09	15	104	2	0	6	45	1	0	46	1	8	0	0	8
	09/16	19	143	1	2	24	168	4	1	173	5	41	0	0	41
	09/23	40	292	3	0	33	232	1	4	237	15	103	0	0	103
	09/30	37	215	20	7	47	267	22	10	299	29	190	5	1	196
	10/07	63	379	14	4	81	410	57	10	477	62	326	50	13	389
	10/14	100	577	33	3	129	667	24	2	693	42	210	25	2	237
	10/21	41	186	48	0	234	23	16	0	39	2	6	2	0	8
	10/28	22	64	28	7	99	14	24	0	38	2	6	3	0	9
	11/04	6	13	11	0	24	0	0	0	0	0	0	0	0	0
	11/11	6	14	6	0	0	0	0	0	0	0	0	0	0	0
TOTAL	349	1987	166	23	2176	335	1826	149	27	2002	158	890	85	16	991

soybean (*Glycine max*), cowpea (*Vigna unguiculata*), etc., trailing wildbean has been studied very little. Considering its diversity and drought tolerance, trailing wildbean appears to have potential for food, hay, wildlife, and other uses, but considerable time would be necessary before cultivars could be developed to rival these popular legumes. The most serious obstacle appears to be indeterminate seed production and harvesting.

REFERENCES

- Fernald, M. L. 1950. Gray's Manual of Botany (18th ed.). American Book Co., New York.
- USDA. 1984. National Plant Materials Manual. Title 190.
- Wolfe, J. A., J. A. Snider, and B. B. Billingsley. 1989. Initial Evaluation of trailing wildbean. Coffeerville PMC Proj. Reports No. 1.

ACKNOWLEDGEMENTS

Phyllis Wolfe and Hazel L. Wolfe volunteered many hours of labor to plant, evaluate, collect seeds, and make this work possible. Without the work of Phyllis Wolfe who spent many hours collecting and counting seeds while recovering from surgery, this work would not have been possible.