

No.

940066



**THE UNITED STATES OF AMERICA**

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

**Crites Moscow Growers, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (ACT, 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA

'Snake'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 30th day of September in the year of our Lord one thousand nine hundred and ninety-six.

Attest.

*Walter A. Stanton*  
Commissioner

Plant Variety Protection Office  
Agricultural Marketing Service

*W. H. Britman*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL MARKETING SERVICE  
 SCIENCE DIVISION

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**

(INSTRUCTIONS ON REVERSE)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) CRITES MOSCOW GROWERS, INC.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. CMG2 98AF		3. VARIETY NAME SNAKE	
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 212 W 8TH STREET PO BOX 8912 MOSCOW, IDAHO 83843-1412		5. PHONE (include area code) 208-882-5519		FOR OFFICIAL USE ONLY PVPO NUMBER 9400066	
6. GENUS AND SPECIES NAME PISUM SATIVUM		7. FAMILY NAME (Botanical) LEGUMINOSAE		F I L I N G Date Jan. 25, 1994 Time 10:20 A.M. <input type="checkbox"/> P.M.	
8. CROP KIND NAME (Common Name) GARDEN PEA		9. DATE OF DETERMINATION 1988		F E E S Filing and Examination Fee: \$ 2,325.00 Date Jan. 24, 1994	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) CORPORATION				R E C E I V E D Certificate Fee: \$ 300.00 Date Sept 6, 1996	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION IDAHO		12. DATE OF INCORPORATION MAY 10, 1933			

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS  
 ROBERT ARTHUR  
 CRITES MOSCOW GROWERS, INC.  
 PO BOX 8912  
 MOSCOW, IDAHO 83843-1412  
 PHONE (include area code): 208-882-5519

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a.  Exhibit A, Origin and Breeding History of the Variety
- b.  Exhibit B, Novelty Statement
- c.  Exhibit C, Objective Description of Variety
- d.  Exhibit D, Additional Description of Variety
- e.  Exhibit E, Statement of the Basis of Applicant's Ownership
- f.  Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office Jan. 10, 1994
- g.  Filing and Examination Fee (\$2,325) made payable to "Treasurer of the United States"

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act)  YES (If "YES," answer items 16 and 17 below)  NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  YES  NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?  FOUNDATION  REGISTERED  CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?  YES (If "YES," through  Plant Variety Protection Act  Patent Act. Give date: \_\_\_\_\_).  NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?  YES (If "YES," GIVE NAMES OF COUNTRIES AND DATES) \_\_\_\_\_  NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT [Owner(s)] <u>Robert M Arthur</u>	CAPACITY OR TITLE RESEARCH DIRECTOR	DATE JANUARY 10, 1994
SIGNATURE OF APPLICANT [Owner(s)] <u>Crites-Moscow Growers, Inc.</u>	CAPACITY OR TITLE	DATE

## EXHIBIT A

1. Snake originated from a hand pollinated cross in the fall of 1985. The female parent is an afilia F6 breeding line, Spirit (Novella x Scout PSBMVI). Spirit and Novella are protected varieties. Scout PSBMVI is a variety developed by the USDA, Agricultural Research Service, Grain Legume Genetics, and Physiology Research unit located at Pullman, Washington. Pea Seed Borne Mosaic Virus Immunity was introduced into Scout, an open variety, and released to the seed industry. The male parent is Bonito.
2. Snake was pure line selected through the F4 then bulked and increased in the F5, a greenhouse increase planted September 23, 1988.
3. The selections were made on plots containing "Fusarium Oxysporum f. sp. pisi", races 5 and 6. Races 2 and 5 resistance were confirmed October 1992, and Race 6 resistance was confirmed September of 1993. The tests for reactions to "Fusarium Oxysporum f. sp. pisi" races were performed by the USDA, Agricultural Research Service located at Prosser, Washington.
4. Snake was placed in small plot trials since the 8th generation. Subsequent multiplications have shown an early variant at .05% frequency.
5. Observations have been made to determine uniformity and stability in generations 6-10 from 1989-1993 over a wide range of growing conditions. The locations chosen were: arid, Moses Lake, Washington; moderate rainfall, Moscow, Idaho; and moist, Mount Vernon, Washington. Snake was noted to be stable and uniform except for the early variant stated above.

## EXHIBIT B

Snake is a freezer pea most similar to Stampede. This variety is resistant to "Fusarium Oxysporum f. sp. pisi" races 1, 2, 5, and 6. Where as Stampede is resistant to Race 1. For the purpose of this exhibit, distinctness will be demonstrated for Wilts 2 and 5. Snake was resistant to Wilts 2 and 5 in a test conducted by Dr. John Kraft, USDA, Prosser, Washington. This test reconfirms an earlier Wilt 2 test conducted at the same location on March 11, 1992. The Wilt 5 test reconfirms tests conducted by Dr. William A. Haglund at the Washington State University Mount Vernon Research and Extension Unit, Mount Vernon, Washington. The tests were conducted on September of 1991 and 1992. Please refer to testing results.

The scoring system used for the wilt tests are: plants alive are classified resistant; dead dying plants are classified susceptible; dead and alive plants are classified segregating; and plants that stay alive longer than the susceptible check are classified tolerant.

1991 Exhibit B

## Fusarium Race 5 Wilt Resistant Cultivars Ranked by Yield.

Cultivar	Source	Stand x1000	Adj AHU	Adj Yield Tons/A	Avg SS	Color Rating	Wilt Rating Race 5
CMG 279F	CM	332	1395	3.80	3.8	19	R
FR 785	Bro	351	1540	3.79	4.0	17	R
CMG 298F	CM	273	1500	3.73	3.6	19	R
Tasman	Rog	347	1445	3.56	4.1	17	R
FR 786	Bro	352	1630	3.56	4.2	17	R
* Sundance	Pur	316	1475	3.48	3.8	17	R
XPF 233	Asg	404	1475	3.33	3.9	18	R
HP 309-8-3-3	Rog	352	1380	3.11	4.4	18	R
FR 750	Bro	342	1475	3.03	4.2	18	R
FR 62	Pur	365	1290	2.98	4.0	17	R
M5X 9102	Maf	346	1420	2.97	4.1	18	R
FR 152	Pur	351	1390	2.91	3.4	19	R
FR 744	Bro	332	1465	2.76	3.6	18	R
FR 61	Pur	366	1310	2.74	4.4	18	R
Leah	Asg	350	1430	2.73	3.6	18	R
FR 138	Pur	311	1455	2.56	3.8	17	R
CMG 292F	CM	346	1320	2.03	3.7	19	R
AVERAGE		350	1,327	ERR	ERR	18	
CV		7.5		10.9	11.4		
LSD 5%		22		0.34	0.8	1	

\* TRIAL STANDARDS OF COMPARISON

## WILT RATING :

R = RESISTANT

S = SUSCEPTIBLE

? = SUSCEPTIBLE

SR = SEGREGATING FOR RESISTANCE

ST = SUSCEPTIBLE TO TOLERANT

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accumulated heat units to 100 tenderometer were adjusted from the actual tenderometer readings. Heat units were adjusted based on a change of an average 7 tenderometer units and 21 heat units per day.

Plant data on height and yield components were obtained from the first planting. Rectangle grids made from lath of 1/4 square meter were placed in the pretest area of each plot. All the plants inside the grid was harvested within one day of the plot harvest. Ten plants were measured for height. Then all the plants were counted and all the filled pods were removed and counted. A sub sample of 20 pods were shelled to estimate the average numbers of peas per pod.

#### VI. Yield

The plots were swathed and then thrashed with a Scott FMC Pea Combine. Extraneous material was eliminated by running the peas across a Key Equipment Co. quality grader. Yields per plot were recorded and then yields were adjusted to 100 tenderometer using the yield tenderometer relationship developed at this Unit utilizing data accumulated from five standard cultivars over a period of six years.

#### VII. Sieve Size

Samples of approximately 500 grams were combined from each replicate plot and shaken through a series of sieve screens. The screens separated peas into 7 categories as follows; 1=9/32", 2=10/32", 3=11/32", 4=12/32", 5=13/32", 6=14/32" and 7=15/32" and over. The average sieve size referred in this trial is calculated by multiplying the percent in each size group by the sieve number (1-7), summing the products and dividing by 100.

#### VIII. Quality Evaluation of Frozen Peas

Composite samples of garden run peas from the replicated plots were processed by washing, blanching 1 minute, rapidly cooling and packing in plastic bags. Peas were frozen and stored in freezers at -10 °F. Product color quality was determined by averaging the ratings of quality control personnel from Western Washington processing companies. Color Quality was based on the USDA grading system of 20-18 = grade A, 17-16 = grade B, and 15-14 = grade C.

#### IX. Fusarium wilt Assay 1991

All entries from the trial were planted in the Fusarium wilt race 5 and 6 nurseries located at the Unit. Unfortunately the nurseries did not provide clear separations between susceptible and resistant cultivars this season. In addition to the field nurseries all entries in which seed was available were tested in the greenhouse using the Speedling method of inoculation with spore concentrations of  $1 \times 10^6$  per ml. The greenhouse test resulted in good results for race 5, but there was unclear results for race 6. Therefore only the results for race 5 are presented in this report.

1989

TABLE 4. Combined results including statistics from both planting dates on yields, quality and Fusarium wilt resistance, ranked by yield.

VARIETY	SOURCE	STAND X1000	ADJ AHU	ADJ YLD T/A	AVG SIEVE SIZE	COLOR RATING	WILT* RACE 5	WILT* RACE 6
KARISMA	Asg	367	1482	4.4	4.2	18.7	S	S
GENIE	Rog	326	1512	4.1	4.6	18.5	S	SR
WAV 505	Wav	371	1518	4.0	4.7	17.8	S	S
9763-17	Can	379	1433	3.7	4.2	16.3	S	S
CMG 271F	CMG	330	1491	3.7	3.9	19.0	S	S
STAMPEDE	Asg	391	1485	3.7	4.2	18.2	S	S
517-4	Can	354	1439	3.7	4.3	16.8	S	S
CMG 258F	CMG	351	1514	3.6	4.1	17.7	R	R
BOLERO *	Asg	375	1483	3.6	4.5	18.2	S	S
CMG 261F	CMG	346	1452	3.6	4.2	18.7	S	S
WAV 504	Wav	343	1469	3.5	4.8	18.0	S	S
HP309-8-3	Rog	327	1436	3.5	4.5	17.8	R	R
M5X-8501	Maf	340	1494	3.5	4.5	17.0	R	R
FR 304	Pur	382	1406	3.4	4.7	17.7	SR	S
HP447-5-2	Rog	339	1495	3.4	3.7	18.3	SR	SR
SCOUT *	CMG	344	1456	3.4	4.9	16.3	S	S
9823-12	Can	347	1453	3.3	4.3	16.2	S	S
WAV 564	Wav	347	1517	3.3	4.6	17.3	S	S
TREK	Asg	335	1359	3.2	3.6	18.7	S	S
9811-7	Can	319	1401	3.2	4.2	16.5	S	S
FR 109	Pur	324	1571	3.2	4.0	18.3	R	S
FLAIR	Asg	376	1362	3.1	3.0	17.2	S	S
CMG 264F	CMG	326	1471	3.1	4.4	18.3	R	S
FR 165	Pur	330	1417	3.0	4.8	18.0	S	S
SPRING	Asg	376	1214	2.9	4.3	18.0	S	S
SUNDANCE	Pur	339	1550	2.9	3.5	17.3	R	S
PUGET *	Bro	352	1501	2.8	3.8	18.3	S	S
LEAH	Asg	380	1529	2.8	3.9	17.8	R	R
10053-9	Can	383	1507	2.7	3.8	17.8	SR	SR
FR 790	Bro	356	1583	2.7	3.8	17.5	S	SR
88ML BLK5	CMG	340	1528	2.7	4.0	18.2	R	S
FR 740	Bro	373	1550	2.6	3.9	18.5	R	R
H 955-13	Rog	334	1287	2.5	3.7	17.7	S	S
FR 749	Bro	360	1538	2.5	4.1	18.0	R	R
FR 743	Bro	352	1541	2.4	3.9	18.0	R	R
TWILIGHT	Pur	349	1593	2.2	4.4	18.0	R	R
BAYARD	CLS	347	1314	2.2	3.1	19.0	S	S
CASH	CLS	373	1163	2.2	3.8	19.0	S	S
F 8089-1	Rog	340	1218	2.1	3.2	18.0	S	S
DARFON	RST	359	1448	2.1	2.2	18.2	S	S
CMG 263F	CMG	348	1535	2.0	3.1	16.5	SR	S
ARGONE	Can	342	1431	1.9	2.7	19.0	S	S
DINOS	Asg	371	1503	1.8	2.0	18.0	S	S
M2X-8601	Maf	328	1235	1.5	2.2	18.2	S	S
AVERAGE		352	1452	3.0	3.9	17.9		
LSD 5%		43		2.0	0.8	0.8		

\* Fusarium wilt resistance is summarized from both race 5 and 6 field nurseries and greenhouse evaluations with pure cultures.

1992 Exhibit B

Table 7 - Fusarium Race 5 Wilt Resistant Cultivars, Ranked By Descending Yield

Tr #	Cultivar	Source	Plt Stand X 1000	AHU 100 Tr	Adj Yield T/A	USDA Color	AVG SS	Wilt Rating Race 5
5	CMG287F	C M	358	1520	5.3	18	4.8	R
4	CMG298F	C M	328	1580	4.8	19	4.9	R
1	CMG279F	C M	358	1500	4.7	19	4.5	R
12	Fr516	Pur	363	1480	4.5	18	5.0	R
13	Fr123	Pur	376	1650	4.3	18	4.6	R
15	*Sundance	Pur	336	1590	4.2	17	4.4	R
9	Fr62	Pur	351	1390	4.2	18	4.7	R
30	XP F233	Asg	368	1580	4.2	18	4.5	R
18	NUN 1889	Nun	366	1630	4.2	18	4.9	R
16	Fr568	Pur	353	1640	4.1	18	4.4	R
40	Leah	Asg	362	1600	4.0	18	4.6	R
8	Fr563	Pur	355	1540	4.0	17	4.8	R
23	FR 765	Bro	340	1600	4.0	19	4.6	R
20	NUN 1999	Nun	349	1540	3.6	17	3.8	R
Average			360	1490	4.1	18	4.5	
Cv			10.8	1.8	13.2	2.7	8.9	
LSD 5%			34.5	25.9	0.5	1.3	0.8	

\* Trial Standards of Comparison

Wilt Rating: R = Resistant; S = Susceptible;  
 SR = Segregating For Resistance; ST = Susceptible To Tolerant.

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recorded and then yields were adjusted to 100 tenderometer using the yield tenderometer relationship developed at this Unit utilizing data accumulated from five standard cultivars over a period of six years.

#### VII. Sieve Size

Samples of approximately 500 grams were combined from each replicate plot and shaken through a series of sieve screens. The screens separated peas into 7 categories as follows; 1=9/32", 2=10/32", 3=11/32", 4=12/32", 5=13/32", 6=14/32" and 7=15/32" and over. The average sieve size referred in this trial is calculated by multiplying the percent in each size group by the sieve number (1-7), summing the products and dividing by 100.

#### VIII. Quality Evaluation of Frozen Peas

Composite samples of garden run peas from the replicated plots were processed by washing, blanching 1 minute, rapidly cooling and packing in plastic bags. Peas were frozen and stored in freezers at -10 °F. Product color quality was determined by averaging the ratings of quality control personnel from Western Washington processing companies. Color Quality was based on the USDA grading system of 20-18 = grade A, 17-16 = grade B, and 15-14 = grade C.

#### IX. Fusarium wilt Assay 1992

All entries from the trial were planted in the Fusarium wilt race 5 and 6 were tested in the greenhouse. Unfortunately the greenhouse tests were not conclusive as the cultures of race 6 Fusarium wilt were not highly pathogenic. The greenhouse test used the Speedling method of inoculation with spore concentrations of  $1 \times 10^6$  per ml. The greenhouse test resulted in good results for race 5 and therefore only race 5 Fusarium wilt resistance are reported here.

USDA  
Prosser Wash.

Feb 15, 1993

Refer to the letter of 2/12/93  
RWS 8-21-96  
940066

CRITES MOSCOW  
WILT SCREENING TESTS

RACE 2

RACE 5

LINE	INF\TOTAL	DEAD	LINE	INF\TOTAL	DEAD
DSP	20\20	15 Susceptible	DSP	16\19	12 Susceptible
VANTAGE	13\13	9	SN 5	0\16	-- Resistant
MINI	1\15	1 Resistant	MINI	10\18	1 Susceptible
M410	19\19	18			
make CM 201	0\17	-- Resistant Snake	CM 501	1\19	-- Resistant
CM 202	2\15	--	CM 502	0\14	--
CM 203	20\20	14	CM 503	0\16	--
CM 204	14\17	10	CM 504	0\14	--
CM 205	15\15	13	CM 505	0\18	1
CM 206	16\16	14	CM 506	14\16	--
CM 207	7\18	--	CM 507	16\16	1
CM 208	0\11	--	CM 508	0\12	--
CM 209	11\16	7	CM 509	0\11	--
CM 210	11\15	4	CM 510	9\15	6
CM 211	1\10	--	CM 511	2\17	2
CM 212	16\16	15	CM 512	0\20	--
CM 213	0\19	--	CM 513	0\14	--
CM 214	17\17	17	CM 514	1\20	--
CM 215	0\18	--	CM 515	0\20	--
CM 216	18\20	14	CM 516	0\19	--
CM 217	15\17	13	CM 517	8\18	6
CM 218	0\16	--	CM 518	0\13	--
CM 219	11\11	3	CM 519	12\20	3
CM 220	13\13	9	CM 520	5\19	3
CM 221	18\19	15	CM 521	1\17	--
CM 222	16\16	12	CM 522	11\16	5
CM 223	7\17	--	CM 523	0\18	--
CM 224	13\16	11	CM 524	0\20	--
CM 225	14\18	8	CM 525	0\18	--
CM 226	10\17	7	CM 526	2\15	--
CM 227	0\16	--	CM 527	0\14	--
CM 228	8\19	--	CM 528	6\15	2
CM 229	2\13	--	CM 529	3\14	--
CM 230	19\19	14	CM 530	12\16	5
CM 231	18\18	15	CM 531	0\15	--
CM 232	11\14	10	CM 532	0\13	--
CM 233	15\18	13	CM 533	0\17	--
CM 234	7\16	5	CM 534	0\18	--
CM 235	12\16	4	CM 535	0\18	--
CM 236	15\17	5	CM 536	0\18	--
CM 237	0\18	--	CM 537	0\17	--
CM 238	2\17	--	CM 538	0\16	--
CM 239	3\20	--	CM 539	0\20	--
CM 240	0\20	--	CM 540	12\18	4
CM 241	10\16	5	CM 541	0\17	--
CM 242	0\15	--	CM 542	1\16	1
CM 243	2\17	--	CM 543	0\18	--
CM 244	15\19	12	CM 544	1\13	1
CM 245	16\18	11	CM 545	0\19	--

Planted 12/29/92

Planted 1/6/93

Inoc. 1/13/93

Inoc 1/19/93

Harvested 2/3/93

Harvested 2/8/93

Refer to the letter of 3/18/93  
RWS 8/21/96

Planted 2-5-72  
INOC 2-18-92  
Read 3-11-92

Wilt 2

940066

			# Dead	# Saved			# Dead	# Saved	
	CM 201	16/18	13	2		CM 228	17/18	9	1
Snake	202	2/17				229	16/20	8	4
	203	16/17	12	2		230	18/20	7	
	204	4/13	1			231	6/17	4	5
	205	5/18	4			232	14/17	13	3
	206	0/18				233	2/18		
	207	6/15	1			234	1/18		
	208	0/9				235	20/20	18	
	209	11/13	10	2		236	1/16		
	210	5/18	1	4		237	15/19		4
	211	8/20		4		238	7/19	6	5
	212	4/20		4		239	6/19		5
	213	3/18				240	10/15	4	4
	214	19/20	10	1		241	0/17		
	215	15/20	7	3					
	216	18/20	11	2		DSP	20/20	20	Susceptible
	217	1/18				Mini	5/18	3	Resistant
	218	18/19	15	1		SN 5	0/16		
	219	19/19	15			14410	20/20	20	
	220	19/20	16	1					
	221	20/20	14						
	222	17/20	9	3					
	223	19/19	13						
	224	15/17	12	2					
	225	19/20	17	1					
	226	20/20	18						
	227	15/19	11	1					

9400066

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
COMMODITIES SCIENTIFIC SUPPORT DIVISION  
NATIONAL AGRICULTURAL LIBRARY  
BELTSVILLE, MARYLAND 20705  
OBJECTIVE DESCRIPTION OF VARIETY  
PEA (PISUM SATIVUM)

EXHIBIT C  
(Pca)

NAME OF APPLICANT(S) CRITES MOSCOW GROWERS, INC.	VARIETY NAME OR TEMPORARY DESIGNATION SNAKE
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) PO BOX 8912 MOSCOW, IDAHO 83843-1412	FOR OFFICIAL USE ONLY PVPO NUMBER 9400066

Place the appropriate number that describes the varietal character in the boxes below.  
Place a zero in first box (e.g.  or ) when number is either 99 or less or 9 or less.

1. TYPE:

1 - GARDEN    2 - FIELD    3 - EDIBLE-PODDED

2. MATURITY:

Node number of first bloom:     No. of days to processing     Heat Units

No. of days Earlier than     } 1 - ALASKA WR    2 - THOMAS LAXTON WR    3 - LITTLE MARVEL

No. of days Later than     } 4 - WANDO    5 - ALDERMAN WR    6 - AUSTRIAN WINTER

3. PLANT HEIGHT:

CM. HIGH

Cm. Shorter than     } 1 - ALASKA WR    2 - THOMAS LAXTON WR    3 - LITTLE MARVEL

Cm. Taller than     } 4 - WANDO    5 - ALDERMAN WR    6 - AUSTRIAN WINTER

4. VINE:

Habit: 1 = DETERMINATE    2 = INDETERMINATE     Stockiness: 1 = SLIM (Alaska)    3 = HEAVY (Alderman)  
2 = MEDIUM (Thomas Laxton WR)

Branching: 1 = NONE (Alaska)    2 - 1-2 BRANCHES (Little Marvel)    3 = MORE THAN 2 BRANCHES (Dwarf Gray Sugar)

Internodes: 1 = STRAIGHT    2 = ZIG ZAG     NUMBER OF NODES

5. LEAFLETS:

Color: 1 = LIGHT GREEN (Alaska WR)    2 = MED. GREEN (Thomas Laxton WR)    3 = DARK GREEN (Alderman)  
4 = OTHER (Specify) Afilia

Wax: 1 = NONE    2 = LIGHT    3 = MEDIUM     1 = NOT MARBLED    2 = MARBLED (Alaska)  
4 = HEAVY

Number of leaflet pairs: 1 = NOT PAIRED    2 = ONE    3 = TWO    4 = THREE OR MORE

6. STIPULES:

1 = LACKING    2 = PRESENT     1 = NOT CLASPING    2 = CLASPING

1 = NOT MARBLED    2 = MARBLED     Size (Compared with leaflets): 1 = SMALLER    2 = SAME  
3 = LARGER

Color (Compared with leaflets): 1 = LIGHTER    2 = SAME    3 = DARKER

7. FLOWER COLOR:

VENATION     STANDARD     WING     KEEL    1 = WHITE    2 = GREENISH    3 = LAVENDER  
4 = PURPLE    5 = RED  
6 = OTHER (Specify)

8. PODS:

1 Shape: 1 = STRAIGHT 2 = SLIGHTLY CURVED  1 End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)  
 3 = CURVED  
 3 Color: 1 = LIGHT GREEN (Alaska WR) 2 = MEDIUM GREEN 3 = DARK GREEN (Alderman)  
 4 = OTHER (Specify) \_\_\_\_\_  
 1 Surface: 1 = SMOOTH 2 = ROUGH  2 Surface: 1 = SHINY 2 = DULL  
 5 Borne: 1 = SINGLE 2 = DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE  
 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) \_\_\_\_\_  
 8  5 CM. LENGTH  1  5 MM. WIDTH (Between sutures)  1  0 NO. SEEDS PER POD

9. SEEDS (95-100 Tenderometer):

3 Color: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = OTHER (Specify) \_\_\_\_\_  
 Seive: %  1  0  2  3  4  3  1  5  0  9  0  0  0  0  0  0  0  0  3  9 AVERAGE

SEEDS (Dry, Mature):

1 Shape: 1 = FLATTENED 2 = ANGULAR 3 = OVAL 4 = ROUNDED  
 3 Surface: 1 = SMOOTH 2 = DIMPLED  2 Surface: 1 = SHINY 2 = DULL  
 3 = WRINKLED  
 2 Color Pattern: 1 = MONOCOLOR 2 = MOTTLED 3 = STRIPED 4 = DOTTED  
 4 Primary Color: 1 = CREAMY-WHITE 2 = CREAM & GREEN 3 = LIGHT GREEN 4 = MEDIUM GREEN  
 5 = DARK GREEN 6 = BLUE-GREEN 7 = YELLOW 8 = BROWN 9 = RED  
 2 Secondary Color: 10 = GRAY 11 = BLACK  
 2 Hilum Floor Color: 1 = WHITE 2 = TAN  1 Cotyledon Color: 1 = GREEN 2 = YELLOW 3 = ORANGE  
 3 = BLACK  
 1  7 GRAMS PER 100 SEEDS

10. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

2 FUSARIUM WILT  2 NEAR-WILT  0 DOWNY MILDEW  
 0 ASCOCHYTA BLIGHT  1 POWDERY MILDEW  0 BACTERIAL BLIGHT  
 0 MOSAIC  1 PEA ENATION MOSAIC  0 YELLOW BEAN MOSAIC  
 2 OTHER (Specify) FUSARIUM WILTS 5 AND 6

11. INSECT: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

0 APHIDS  OTHER (Specify) \_\_\_\_\_

12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Leafiness	STAMPEDE	Fresh Seed Color	BONITO
Leaf Color	NOVELLA	Mature Seed Color	BONITO
Pod Color	BONITO	Seed Shape	BONITO
Pod Shape	BONITO	Plant Habit	STAMPEDE

COMMENTS:

EXHIBIT D

Stampede is maturing earlier than Snake. Extra heat units are needed to reach a Tenderometer of 100, which will add 2-3 days in maturity. Please refer to D1. Stampede and Bolero have very similar heat units, while Sundance averages Plus 65 greater than Stampede.

The pattern is the same for 1992\*. Sundance and Snake are separated by 10 AHU and Bolero is 50 AHU less than Snake. These results were taken from the 1992 field trial at the Northwest Regional Experiment Station located in Mount Vernon, Washington. Since the application was filed, additional trial results in a different location confirmed earlier results\*\*. Pure culture tests in 1993 show Wilt 6 tolerance\*\*\*. The subsequent test in 1995 demonstrated resistance\*\*\*\*.

Snake clearly differs from Stampede with resistance to Fusarium Wilts 2 and 5 and furthermore demonstrates resistance to Fusarium Wilt 6 and is later maturing.

- \* See D2
- \*\* See D3
- \*\*\* See D4
- \*\*\*\* See D5

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Exhibit O<sub>2</sub>

But

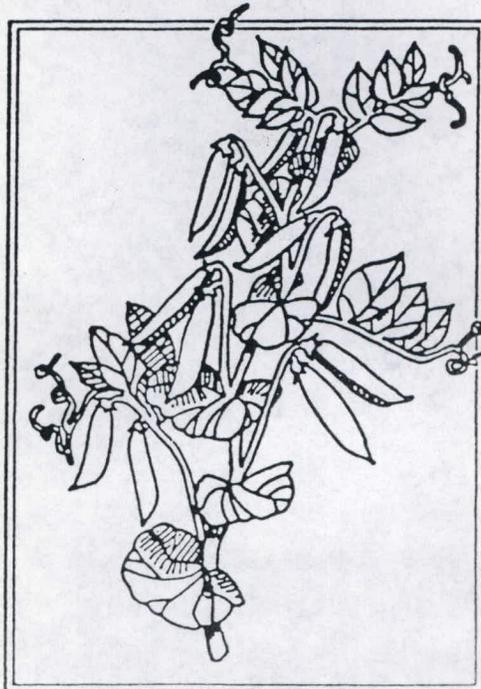
# PROCEEDINGS

*8th annual*

WESTERN WASHINGTON

PROCESSING PEA

CONFERENCE



BPOE ELKS LODGE 1604  
MOUNT VERNON, WA

*February 24, 1993*

1992 ~~1993~~

Fusarium Race 5 Resistant Cultivars, Ranked in Decending Order.

Cultivar	Source	Plt Stand X 1000	AHU 100 Tr	Adj Yield T/A	USDA Color	AVG SS	Wilt Rating Race 5
CMG287F	CM	358	1520	5.3	18	4.8	R
CMG298F	<sup>'Snake' RWS</sup> CM	328	1580	4.8	19	4.9	R
CMG279F	CM	358	1500	4.7	19	4.5	R
Fr516	Pur	363	1480	4.5	18	5.0	R
Fr123	Pur	376	1650	4.3	18	4.6	R
*Sundance	Pur	336	1590	4.2	17	4.4	R
XP F233	Asg	368	1580	4.2	18	4.5	R
Fr62	Pur	351	1390	4.2	18	4.7	R
NUN 1889	Nun	366	1630	4.2	18	4.9	R
Avg of 4 Standard Cvs				4.2	17.8	4.9	
Fr568	Pur	353	1640	4.1	18	4.4	R
Fr563	Pur	355	1540	4.0	17	4.8	R
Leah	Asg	362	1600	4.0	18	4.6	R
FR 765	Bro	340	1600	4.0	19	4.6	R
NUN 1999	Nun	349	1540	3.6	17	3.8	R
Average		360	1490	4.1	18	4.5	
CV		10.8	1.8	13.2	2.7	8.9	
LSD @5%		35	30	0.5	1	0.8	

\* Trial Standards of Comparison

Wilt Ratings : R = Resistant, S = Susceptible, SR = Segregating for Resistant,  
ST = Suceptible to Tolerant

Cultivars for Special Mention

CMG 287F This is a Crites Moscow cultivar. It shared first place in yield in 1992, first place in 1991 and fourth place in 1990. It has normal leaf type and multiple flowers on each fruiting node. Plant height has ranged from 27 - 30 inches. Maturity is about 1 day later than 'Charo'. It had Fusarium race 5 all three years and was segregating for resistance to race 6 in 1990. Average sieve size in the past three years has been 4.8, 3.8, and 4.3. Frozen color ratings were 18 for the three years.

<sup>RWS</sup> <sup>'Snake'</sup> CMG 298F This is a Crites Moscow cultivar. It ranked third in yields in 1992 and seventh in 1991. It has an afila leaf type with multiple flowers produced on each fruiting node. The plant height ranges from 26 - 33 inches. Maturity is the same as 'Sundance'. It has been resistant to Fusarium race 5 the past two years. Average sieve size has been 4.9 and 3.6. Frozen color rating has been 19 both years.

Maturity difference  
 CMG-298 F compares to Sundance  
 and different than Bolero

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1992

Combined Results From Both Planting Dates For Pea Yields And Quality. Data is Ranked  
 By Yield in Decending Order.

Cultivar	Source	Plt Stand K 1000	AHU 100 Tr	Adj Yield T/A	USDA Color	AVG SS	Wilt Rating Race 5
XP F274	Asg	344	1480	5.3	18	4.5	S
CMG287F	C M	358	1520	5.3	18	4.8	R
HP779-3-1	Rog	366	1520	5.0	17	5.1	S
CMG298F 'Snecke'	C M	328	1580	4.8	19	4.9	R
XP F275	Asg	385	1490	4.8	19	4.6	S
OSU537	C M	299	1560	4.8	17	5.3	S
Encore	Asg	322	1490	4.8	18	4.7	ST
CMG279F	C M	358	1500	4.7	19	4.5	R
*Bolero	Asg	358	1530	4.7	18	4.7	S
Renown, XP F267	Asg	363	1490	4.7	18	4.6	S
XP F266	Asg	363	1390	4.6	18	3.8	S
Polo	C S	350	1620	4.6	18	4.0	S
Filly, XP F241	Asg	342	1360	4.6	19	4.3	S
Fr516	Pur	363	1480	4.5	18	5.0	R
HP778-5-1	Rog	359	1510	4.5	19	5.2	S
WAV 504	Bro	357	1540	4.5	18	4.9	S
*Charo	C M	341	1510	4.5	17	5.2	ST
RS26414	C M	503	1570	4.4	16	3.4	S
Fr519	Pur	373	1570	4.3	18	4.2	S
Fr123	Pur	376	1650	4.3	18	4.6	R
*Sundance	Pur	336	1590	4.2	17	4.4	R
NUN 1889	Nun	366	1630	4.2	18	4.9	R
XP F233	Asg	368	1580	4.2	18	4.5	R
Fr62	Pur	351	1390	4.2	18	4.7	R
Fr568	Pur	353	1640	4.1	18	4.4	R
Fr563	Pur	355	1540	4.0	17	4.8	R
Leah	Asg	362	1600	4.0	18	4.6	R
FR 656	Bro	340	1420	4.0	19	4.7	S
FR 765	Bro	340	1600	4.0	19	4.6	R
Award, XP F236	Asg	350	1300	3.9	18	5.3	S
Epic, XP F237	Asg	336	1330	3.9	19	4.9	S
Quatro	C S	365	1400	3.8	19	4.7	S
NUN 1999	Nun	349	1540	3.6	17	3.8	R
Solo	C S	328	1440	3.6	17	4.4	S
FR 798	Bro	374	1600	3.5	18	4.8	SR
*Spring	Asg	334	1250	3.5	19	5.1	S
Revolution	Rog	357	1280	3.5	19	4.7	S
Arise	Asg	329	1260	3.4	19	5.2	S
RS25509	C M	369	1290	3.2	19	4.7	S
Fr505	Pur	385	1340	3.2	18	4.5	S
Fr5	Pur	493	1310	3.0	19	3.6	S
Minnow	C S	454	1550	3.0	18	1.9	ST
NUN 1013	Nun	306	1300	2.8	19	4.7	S
Average		360	1490	4.1	18	4.5	
CV		10.8	1.8	13.2	2.7	8.9	
LSD @5%		35	30	0.5	1	0.8	

RWS  
8-21-96

\* Trial Standards of Comparison  
 Wilt Ratings : R = Resistant, S = Susceptible, SR = Segregating for Resistant,  
 ST = Suceptible to Tolerant

Refer to 1989 Pea Variety trails @ Washington State for  
 Comparison with most similar variety RWS 8-21-96

Additional information since HPT litigation filed to bolster  
 Claim that Stampede & Snake have different maturities

9400066

Exhibit D<sub>3</sub>

1994 FREEZER GREEN PEA VARIETY TRIALS

REA-LYONS FIELD near Walla Walla Wash.

VARIETY NUMBER	VARIETY NAME	COMPANY	PLANT STAND/FT	FIRST BLOOM	HARVEST DATE	HEAT UNITS
1	HAILEY	ASGROW	6.7	5-13	6-10	1481
2	CMG-290	CRITES-MOSCOW	6.5	5-12	6-8	1427
3	CMG-307	CRITES-MOSCOW	6.6	5-13	6-8	1427
4	POINT	NUNHEMS	4.5	5-11	6-8	1427
5	FR-510	PURE LINE	5.6	5-14	6-10	1481
6	FR-87	PURE LINE	5.7	5-14	6-11	1513
7	SOLO	SHARPES	5.2	5-18	6-16	1639
8	FR-84	PURE LINE	5.6	5-22	6-15	1620
9	HP-235	ROGERS-NK	6.7	5-23	6-16	1639
10	VENUS	SMITH	5.5	5-17	6-12	1547
11	TACOMA	ASGROW	6.8	5-19	6-15	1620
12	POLO	SHARPES	5.7	5-28	6-23	1860
13	HP-778	ROGERS-NK	5.7	5-23	6-18	1690
14	SOMERSET	ROGERS-NK	5.8	5-24	6-21	1777
15	KALAMO	ASGROW	6.5	5-24	6-18	1690
16	BARLE	CRITES-MOSCOW	5.1	5-24	6-19	1714
17	NUN 1894	NUNHEMS	5.0	5-17	6-18	1690
18	FR-164	PURE LINE	5.6	5-23	6-20	1744
19	FR-97	PURE LINE	5.9	5-25	6-20	1744
20	FR-91	PURE LINE	5.9	5-28	6-24	1893
21	FR-734	BROTHERTON	5.9	5-25	6-21	1777
22	PF-307	ROGERS-NK	6.0	5-26	6-22	1817
23	XPF-295	ASGROW	5.9	5-25	6-20	1744
24	XPF-294	ASGROW	6.0	5-26	6-20	1744
25	STAMPEDE	ASGROW	6.1	5-27	6-22	1817
26	ENCORE	ASGROW	5.5	5-25	6-22	1817
27	BOLERO (CHECK)	ASGROW	5.9	5-27	6-21	1777
28	DUAL (CHECK)	ASGROW	5.3	5-24	6-22	1817
29	FR-695	BROTHERTON	5.2	5-28	6-23	1860
30	FR-772	BROTHERTON	5.6	5-29	6-23	1860
31	PF70A-DSP(CHECK)	BROTHERTON	6.3	5-28	6-22	1817
32	CMG 308 AF	CRITES MOSCOW	5.0	5-30	6-23	1860
33	GENIE	ROGERS-NK	6.9	5-27	6-23	1860
34	SANCHO	SHARPES	5.3	5-26	6-22	1817
35	LAZOR	ASGROW	6.1	5-26	6-22	1817
36	FR-763	BROTHERTON	5.9	5-30	6-23	1860
37	NUN 9862	NUNHEMS	5.6	5-27	6-22	1817
38	NUN 0561	NUNHEMS	6.5	5-28	6-23	1860
39	PD-606	ROGERS-NK	6.4	5-30	6-23	1860
40	SNAKE	CRITES-MOSCOW	5.1	5-30	6-24	1893
41	HP-888	ROGERS-NK	5.9	5-27	6-21	1777
42	HP-1192	ROGERS-NK	5.1	5-14	6-12	1547

RWS  
8-21-96

Refer to "1994 Green Pea Variety Trial Heat Units  
 Rea-Lyons Field  
 Temperatures Taken from Walla Walla County Airport"

1993 Screening

	R2	R5	R6		
DSP	20/20	19/19	19/19		
SU 5	1/12	0/15	2/13		
Mini	19/19	17/17	19/19		
M 410	14/14	-	-		
Vantage	14/14	-	-		
cm 1	15/20	1/13	11/11	Tol	
2	19/19	0/20	19/19	Tol	
3	19/20	0/18	20/20	Tol	
4	18/20	0/19	19/19	Tol	
5	5/6	15/19	15/15	Tol	Snake
6	0/15	0/17	16/16	Tol	
7	0/15	0/18	12/12	Tol	
8	13/19	0/19	14/14	Tol	
9	2/18	0/18	20/20		
10	0/16	0/20	12/12	Tol	
11	16/20	14/20	19/19	Tol	
12	20/20	20/20	18/18	Tol	
13	17/19	20/20	19/19	Dead	
14	17/19	18/18	19/19	Tol	Dead
15	20/20	19/19	20/20	Dead	
16	19/19	19/19	13/11	Tol	
17	20/20	19/19	20/20	Dead	Dead
18	20/20	16/20	16/20	Tol	Tol
19	3/20	20/20	17/17		
20	17/20	17/17	20/20	Dead	
21	15/20	20/20	20/20		

	R2		R5		R6			
cm 22	17/17		15/20	Tol	19/19			
23	10/16		13/19	Seg	20/20			
24	8/8		20/20	Dead	19/19			
25	2/19		20/20	Dead	19/20			
Race 2			Race 5+6					
Planted	9-27-93		Planted	10-7,8-93				
WOC	10-4-93		WOC	10-21,22-93				
harvest	10-21-93		harvest	11-10,11-93				



U.S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL MARKETING SERVICE  
 SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

EXHIBIT E  
 STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S)  CRITES MOSCOW GROWERS, INC.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  CMG 298AF	3. VARIETY NAME  SNAKE
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)  212 WEST 8TH PO BOX 8912 MOSCOW IDAHO 83843	5. TELEPHONE (include area code)  208-882-5519	6. FAX (include area code)  208-882-6464
7. PVPO NUMBER  9400066		

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain.  YES  NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company?  YES  NO  
 If no, give name of country \_\_\_\_\_

10. Is the applicant the original breeder? If no, please answer the following:  YES  NO

a. If original rights to variety were owned by individual(s):  
 Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country \_\_\_\_\_

b. If original rights to variety were owned by a company:  
 Is the original breeder(s) U.S. based company? If no, give name of country \_\_\_\_\_

11. Additional explanation on ownership (If needed, use reverse for extra space):

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

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