

UNIVERSITY OF WISCONSIN
Madison, Wisconsin

1. A collection of pericarp factors.

A collection of factors conditioning pericarp pigmentation has recently been sent to the National Seed Storage Laboratory in Fort Collins, Colorado. These factors have been incorporated into a common genetic background by successive backcrossing to the colorless pericarp white cob inbred strain 4 County 63. The collection represents a comprehensive selection of diverse origin and phenotype. One group of factors form a continuous series from dark red through orange and tan to colorless; others group according to degree of variegation or mosaicism. The factors are individually described in the accompanying tables. Seed is now available, from Fort Collins, for genetical studies. The 4 Co 63 inbred strain is of a maturity suited to Southern Wisconsin.

R. A. Brink
Derek Styles

Collection of factors conditioning pericarp pigment incorporated, by successive backcrossing, into the colorless pericarp white cob inbred line 4 County 63.

A. Uniform Pericarp Pigment--This collection represents a continuous series from dark red through orange and tan to colorless or near colorless. Although not tested individually for allelism, they are probably all alleles of the P locus. They are ordered according to intensity of pericarp pigment: "11" representing the darkest red in the collection, and "1" representing colorless.

Field No.	Pericarp intensity	Cob color	Available information on origin and source	No. backcross generation to 4 Co 63	Notes
65-CFS-33	11	Red	Red husked pointed popcorn	5	
65-CFS-272	11	Red	Variegated stock from Caingang Ivai aberto A; from H. C. Cutler, Nov., 1949; originally from F. C. Brieger, Sao Paulo, who raised it from Indian seed from Parana, Southern Brazil.	5	
65-CFS-303	10-11	Red	Peru, 1948; from Paul Mangelsdorf, Harvard Univ., April, 1949.	6	
65-CFS-548	10-11	Red	ML3 PP	4	Possibly linked with <u>zb₄</u> <u>ts₂</u>
65-CFS-36	10	Red	90 PP	5	
65-CFS-61	10	Red	Argentina red popcorn; from W. L. Brown, Pioneer Hybrid Corn Co., Jan., 1952.	6	
65-CFS-237	10	Red	Variegated stock from Ames, P. I. 168001	5	May be unstable

65-CFS-266	10	Red	Georgia, U.S.A.	5	
65-CFS-305	10	Red	M13 PP	6	
65-CFS-43	9-10	Red	R. W. Richardson, Minn., March, 1951.	5	
65-CFS-71	9-10	Red	Brazil-18; <u>ex</u> Caingang stocks from F. C. Brieger, Sao Paulo, Brazil, April, 1951.	4	
65-CFS-79	9-10	Red	Brazil-23; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	4	
65-CFS-238	9-10	Red	Madison variegated stocks, of U.S.A. origin	3	"Unstable"-- occasional lighter or darker strip- ing on uni- form back- ground.
65-CFS-315	9-10	Red	Mosaic from Dr. Matlock, Arizona	6	May be un- stable.
65-CFS-316	9-10	Red	Dakota Squaw Mosaic from A. M. Strommen, Agric. Exp. Sta., Spooner, Wis.	6	
65-CFS-53	9	Red	Brazil-1A; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	5	
65-CFS-186	9	Red	Dakota Squaw Mosaic from A. M. Strommen	3	Linked T1-2b
65-CFS-302	9	White	Mosaic from Paul Weatherwax, April, 1945 as 1872.119 Originally from Huancayo, Peru, 1945.	5	
65-CFS-332	9	White	Bloody Butcher; from T. C. Warwick & Son, Blenheim, Ontario, Canada.	6	

Field No.	Pericarp intensity	Cob Color	Available information on origin and source	No. backcross generation to 4 Co 63	Notes
65-CFS-75	8-9	Red	Brazil-21; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	4	
65-CFS-293	8-9	Pale	Mosaic from A. Johnson, Waukesha, Wisconsin.	6	Pale crown
65-CFS-327	8-9	Red	R. Andrew, Agronomy Dept., Univ. of Wisconsin.	6	
65-CFS-342	7-9	White	Northwestern Dent variety from Olds' Seed Co. Madison, Wisconsin, April, 1950.	6	Pale crown
65-CFS-57	8	Red	Brazil-17; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	4	
65-CFS-181	8	Pale	Pisac, Peru; from H. C. Cutler, Missouri Bot. Garden, St. Louis, November, 1949.	3	Pale crown, linked T1-2b.
65-CFS-320	8	Red	"Hardware Orange" mutant from colorless; of unknown parentage; from N. P. Neal.	5	
65-CFS-334	8	White	Bloody Butcher from O. & M. Seed Co., Green Spring, Ohio, March, 1948.	6	Pale crown
65-CFS-324	7-8	White	W1376; from N. P. Neal, Agronomy Dept., Univ. of Wisconsin.	6	
65-CFS-140	7	Red	Quebec 36; from R. Brawn, Macdonald College, P.Q., Canada, April, 1951.	4	Possibly linked <u>zb</u> ₄ <u>ts</u> ₂

65-CFS-321	7	Red	A mutant in W153, a Wisconsin inbred strain.	6	
65-CFS-330	7	White	Ames, Iowa, P.I. 183765, Jan. 1951.	5	
65-CFS-350	7	White	Quebec 63M; from R. Brawn.	6	
65-CFS-40	6-7	Red	W153, from J. Maloney, Agronomy Dept., Univ. of Wisconsin, November 1951.	5	Darkly pigmented silk scar.
65-CFS-325	6-7	White	Mosaic from Will's Rainbow Flint, North Dakota.	6	Pale crown
65-CFS-364	6-7	White	Tesuque, N. Mexico; from E.S. Anderson, Missouri Bot. Garden, January, 1948.	6	Pericarp slightly "grained".
65-CFS-317	6	Red	Charasani, Bolivia; from H. C. Cutler, March, 1949.	6	
65-CFS-336	5-6	White	Bloody Butcher; from O. & M. Seed Co., Green Spring, Ohio, March, 1948.	6	
65-CFS-263	5	White	Uncertain origin.	7	
65-CFS-369	5	White	Mexico, Sin 2; from E. J. Wellhausen, Rockefeller Foundation, Mexico City, November, 1950.	5	
65-CFS-47	4-5	Red	J. H. Lonquist, Univ. of Nebraska, Lincoln, December, 1950.	5	
65-CFS-345	4-5	Red	Bloody Butcher; from T. C. Warwick & Son, Blenheim, Ontario, April, 1948.	6	
65-CFS-285	3-5	Pale	Ecuador 1184b; from Paul Mangelsdorf, April, 1949.	5	Darkly pigmented silk scar.

Field No.	Pericarp intensity	Cob Color	Available information on origin and source	No. backcross generation to 4 Co 63	Notes
65-CFS-576	3	Red	Unknown	4	Linked T1-2b, and possibly <u>zb₄</u> <u>ts₂</u>
65-CFS-381	2-3	Red	Unknown	5	Linked T1-2b
65-CFS-319	2	Red	Mosaic from Paul Weatherwax, April, 1949, as: 1872-119 Huancayo, Peru, 1945.	5	
65-CFS-365	2	Red	Krug 1-1-1; from W. L. Brown, Pioneer Hi-Bred Corn Co., Dec. 1950.	6	
65-CFS-308	1-2	Red	Cologaita, Potosi, Bolivia; from H. C. Cutler, March, 1949.	5	
65-CFS-309	1-2	Red	Bloody Butcher; from O. & M. Seed Co., Green Spring, Ohio, March, 1948.	6	
65-CFS-376	1	White	Probably the 4 Co 63 inbred strain itself.	5	Linked T1-2b (1S.43; 2S.36)

B. Variegated--Arbitrarily grouped into "Dark", "Medium", "Light", and "Very Light", according to the degree of variegation. Such groupings are not meant to indicate known modulator dosage.

Field No.	Degree of pericarp variegation	Available information on origin and source	No. backcross generation	Notes
65-CFS-138	Dark	Jose-17; from E. S. Anderson, Missouri Bot. Garden, September, 1948.	4	Possibly linked <u>zb</u> ₄ <u>ts</u> ₂
65-CFS-155	Dark	Magdalena-23, Colombia; from Paul Mangelsdorf, April, 1949.	4	Possibly linked <u>zb</u> ₄ <u>ts</u> ₂
65-CFS-195	Dark	Magdalena-23, Colombia; from Paul Mangelsdorf, April, 1949.	5	Linked T1-2b
65-CFS-250	Dark	Quetzaltenango above Zunil, Guatemala; from E. S. Anderson.	5	
65-CFS-252	Dark	Zapalate, Chico; from E. G. Anderson, April, 1949.	5	
65-CFS-278	Dark	Brazil 6a; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	5	
65-CFS-96	Medium	Open-pollinated variety; from J. D. Brown.	4	Linked T1-2b
65-CFS-110	Medium	Zapalate, Chico; from E. G. Anderson, April, 1949.	4	Possibly linked <u>zb</u> ₄ <u>ts</u> ₂
65-CFS-245	Medium	Cotogaita, Potosi, Bolivia; from H. C. Cutler, March, 1949.	6	
65-CFS-246	Medium	Reyes, Bolivia; from H. C. Cutler, March, 1949.	6	
65-CFS-249	Medium	Peru 1233; from Paul Mangelsdorf, April, 1949.	5	

Field No.	Degree of pericarp variegation	Available information on origin and source	No. backcross generation	Notes
65-CFS-253	Medium	Peru 1209; from Paul Mangelsdorf, April, 1949.	5	
65-CFS-255	Medium	Chacan, Peru 2276; from Paul Weatherwax, April, 1949.	5	
65-CFS-259	Medium	Linkenmeyer Bros., Ricerville, Iowa; from E. S. Anderson, June 1948.	5	
65-CFS-262	Medium	Uncertain origin	6	
65-CFS-264	Medium	Crow Creek, U.S.A.	6	
65-CFS-265	Medium	Minnesota stripe from R. R. St. John, Purdue University, March, 1948.	6	
65-CFS-273	Medium	Georgia, U.S.A.	5	
65-CFS-275	Medium	Brazil-2a; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	3	
65-CFS-276	Medium	Brazil 5a; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	5	
65-CFS-279	Medium	Brazil 7a; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	5	
65-CFS-280	Medium	Brazil 8b; <u>ex</u> Caingang stocks from F.C. Brieger, April, 1951.	5	
65-CFS-282	Medium	Brazil 13; <u>ex</u> Caingang stocks from F.C. Brieger, April, 1951.	5	
65-CFS-283	Medium	Brazil 19; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	3	
65-CFS-284	Medium	Mexico 1a <u>ex</u> Chis 101; from E. J. Wellhausen, Mexico City, November, 1950.	5	

65-CFS-286	Medium	Caingang Ivai aberto A; from H. C. Cutler, Nov., 1949. Originally from F. C. Brieger, Sao Paulo, who raised it from Indian seed from Parana, S. Brazil.	5	
65-CFS-497	Medium	D. F. Jones, Conn. Agric. Expt. Sta., New Haven, Conn.	5	Possibly linked <u>ts</u> ₂
65-CFS-501	Medium	Unknown origin.	5	Possibly linked <u>ts</u> ₂
65-CFS-506	Medium	J. D. Brown	6	Possibly linked <u>zb</u> ₄
65-CFS-116	Light	Peru 1233; from Paul Mangelsdorf; April, 1949.	4	Possibly linked <u>zb</u> ₄ and <u>ts</u> ₂ .
65-CFS-256	Light	J. D. Brown, April 15, 1948.	5	
65-CFS-261	Light	Cornell; from R. Andrew, Agronomy Dept., Univ. of Wisconsin.	6	
65-CFS-281	Light	Brazil-12; <u>ex</u> Caingang stocks from F. C. Brieger, April, 1951.	4	
65-CFS-226	Very light	Ames, Iowa; P.I. 168001, Jan., 1951.	5	

C. Mosaic

Field No.	Available information on origin and source	No. backcross generations	Notes
65-CFS-286	Calea, Near Cuzco, Peru-2169; from Paul Weatherwax, April, 1949.	5	
65-CFS-287	From Dr. Matlock, Arizona.	5	
65-CFS-288	Bolivia: from W. S. Brown, October, 1948.	4	
65-CFS-289	Possible origin: San Juan, Pueblo, New Mexico; from Paul Weatherwax, April, 1949.	5	
65-CFS-290	Chas. Fountaine (U.S.A.).	5	
65-CFS-291	R. R. St. John, Purdue University, March, 1948.	5	
65-CFS-292	Purchased from Madison store by R. Brawn.	5	
65-CFS-294	Will's Rainbow Flint (North Dakota).	5	
65-CFS-297	Tesuque, New Mexico; from E. S. Anderson.	5	
65-CFS-301	R. W. Richardson, Minnesota, March, 1951.	5	
65-CFS-556	Chas. Fountaine (U.S.A.)	6	Linked T1-2b

D. Miscellaneous

Field No.	Description	Available information on origin and source.	No. backcross generations	Notes
65-CFS-25	<p><u>po</u>v <u>ov</u> - Orange variegated. Varying degrees of light & dark variegations on an orange-red background. For further information refer to F. Valentine, 1957, Ph.D. Thesis, U. of Wisconsin Library, Madison.</p>	Ricerville, Iowa	5	
65-CFS-29		F. Valentine	5	
65-CFS-124		F. Valentine	4	Possibly linked <u>zb</u> ₄ <u>ts</u> ₂
65-CFS-167	Orange background, grained with red.	Province of Boyaca, Colombia, collected by Schultes; from Paul Mangelsdorf, April, 1949.	5	Possibly linked <u>zb</u> ₄
65-CFS-355	Orange background, grained with red.	Province of Boyaca, Colombia, collected by Schultes; from Paul Mangelsdorf, April, 1949.	7	
65-CFS-360	Diffuse, variable expression.	Peru, 1948; from Paul Mangelsdorf, April 1949.	5	P allele is red pericarp, red cob.

Field No.	Description	Available information on origin and source.	No. backcross generations	Notes
65-CFS-80	Purple-red pericarp	" <u>r</u> ^{ch} : Burbank"	4	Stock carries <u>P1</u> . Has not been verified as an <u>R</u> allele.
65-CFS-69	Purple flushed pericarp and purple cob core. Probably a <u>P1</u> allele.	Venezuela-1. var. Refugio: from Obregon, 1951.		