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NEW CROP VARIETIES

No. 9 — Summer 1967

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Outlined here are descriptions of new varieties of certain field crops. The purpose is to provide the extension worker promptly with reference information attuned to his requirements.

Assembled by the Federal Extension Service with the cooperation of State Extension Agronomists and the Agricultural Research Service--USDA

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Inquiry about any variety described here should be directed to the State releasing it.

Wheat

Andnox (C.I. 13907) is a soft red winter wheat developed by the South Carolina AES from a cross of Anderson and Knox. There it is expected to replace Anderson. Early, short to midtall with strong white stems, Andnox is awnless except for some tip awns, with white glumes. It offers excellent test weight, milling and baking qualities and resistance to soil-borne mosaic. The new variety is susceptible to mildew and some races of leaf rust. Andnox is adapted to the same areas as Anderson, Blueboy, Coker Hadden, Georgia 1123 and Wakeland. Certified seed is available.

Federation 67 is a soft, white spring wheat that is distinguished from its Federation parent by increased disease resistance. In Idaho where developed, it has shown moderate resistance to stem and stripe rust and good resistance to mildew. The new variety is intended to replace Federation in irrigated areas of southwestern Idaho. Foundation or registered seed will be available in 1968.

Guide (C.I. 13856) is a hard red winter wheat developed cooperatively by USDA and Nebraska AES. Its use will be encouraged only in the State's south-central and southwest cropping districts, primarily to spread production and harvest risks. Early maturing with moderately short stiff straw, it exhibits adult plant resistance to stem rust races which prevailed during its testing period. It is susceptible to leaf rust, loose smut, bunt, streak, soil-borne mosaic and to Hessian fly. Guide has only fair winter hardiness, but excellent milling and baking properties. Some 1500 bushels of foundation seed were to be allocated to certified growers this summer.

Maricopa is a semihard-to-hard, white spring wheat adapted to the irrigated areas of the Southwest where Ramona 50 is grown. In Arizona tests, Maricopa excelled Ramona 50 by about 25 percent; in milling and baking tests the two varieties were similar. The new variety was released in 1966 by Arizona AES and USDA. It stems from an initial cross made at Washington AES in 1949 followed by two crosses, selection and evaluation at the Arizona Station. Certified seed will be available this year.

Compiled by John R. Paulling, Coordinator, Plant Science Programs

Wheat (cont.)

Moran (C.I. 13743) is a hard red spring wheat developed cooperatively by Idaho AES and USDA. Mid-season to late in maturity, it has white, moderately stiff straw, white glumes and is resistant to local races of stripe and stem rust. Its milling characteristics are good; dough-mixing and bread-making qualities, excellent. Under irrigation in eastern Idaho where Moran is expected to replace Thatcher, the new variety produced more grain but usually of lower test weight. On dryland, Thatcher produced slightly more grain of significantly higher test weight. The new variety was selected at the Aberdeen Branch, Idaho AES from a cross (No. 58 - Thatcher) x (Thatcher - Kenya Farmer) originally made at the Minnesota AES. Foundation and breeder seed will be distributed by the Teton Branch and Idaho AES, St. Anthony, Idaho.

Nadadores 63 is a product of the Rockefeller-Mexican Wheat Project. It was derived from $\sqrt{(\text{Frontana} \times \text{Kenya 58} - \text{Newthatch}) \times (\text{Norwin 10} - \text{Rever})}$ x Yaqui 54². In California tests, it has yielded about the same as Pitic 62. Nadadores 63 is a medium hard, red seeded variety that matures in the range of Onas 53 and Big Club 60, the latest California varieties. Milling and baking tests indicate the grain has some acceptance for pastry or family flour purposes.

Parker (C.I. 13285) is a hard red winter wheat developed in the Kansas wheat breeding program, tested in cooperation with the Missouri AES and released cooperatively with USDA. It matures early, has short stiff straw, resists leaf rust and Hessian fly, including race B. However, Parker is susceptible to soil-borne mosaic, wheat-streak mosaic, stem rust, bunt and loose smut. Tested widely in Kansas and Missouri, Parker produced outstanding yields in some tests and average or better in others. It is expected to compare favorably with Triumph. The new variety is recommended for south central and central Kansas and in Missouri. Foundation seed was released to certified growers in both States in 1966.

Pitic 62 is an early spring wheat developed by the International Maize and Wheat Improvement Center in Mexico, recently approved for certification in California where it is regarded as "strictly a feed wheat." Milling and baking tests have found it unsatisfactory. However, it outyielded Ramona 50 some 24 percent. In California tests Pitic displayed resistance to many races of stem rust, moderate resistance to stripe rust and powdery mildew but susceptibility to bunt and root rot. Foundation seed is limited, non-certified seed is available from California commercial sources.

Wheat (cont.)

Rego is a hard red winter wheat developed cooperatively by Montana AES and the Crops and Entomology Divisions, USDA. In quality it is similar to Turkey and superior to Karmont. Stems are solid to semi-solid, with resistance to wheat-stem saw fly and moderate resistance to stripe rust. Rego is resistant to some races of bunt with some resistance to loose smut. It is midseason in maturity; tall with white, weak stems; and awnletted spikes. The new variety is moderately winterhardy, particularly adapted to north central Montana. The Montana Station maintains breeder seed.

Riley 67 (Purdue 6234 composite, C.I. 14110), a soft red winter wheat developed by Purdue AES and USDA Crops and Entomology Research Divisions, is similar in all characteristics to Riley (see New Crop Varieties No. 7, 1965) except for added high resistance to leaf rust. Riley 67 is the composite of 19 lines homozygous for the Transfer type of resistance to leaf rust, interestingly, the first soft wheat in which it is incorporated. (The leaf rust resistance of Transfer came from an intergeneric cross by E. R. Sears between spring wheat and a wild relative of wheat.) Foundation seed is being allotted to certified producers this fall.

Scout 66 (C.I. 13996), a hard red winter wheat, is a composite of 85 selections from Scout (C.I. 13546) see "New Crop Varieties No. 5", developed by Nebraska AES and USDA. Scout 66 is similar to Scout in most identifying characteristics. It exhibits the same reaction to stem rust, loose smut, wheat streak mosaic and other diseases. Like Scout, it appears to have a wide range of adaptation. It is equal or superior to Scout in yield, earliness, and winterhardiness. Scout 66 differs from Scout in being more uniform for individual plant height, maturity, and milling and baking properties. Some 1200 bushels of foundation seed are to be distributed to certified seed producers this summer.

Oats

Bruce (C.I. 7888) is a winter oat developed at the South Carolina AES where it is regarded as best suited to the Piedmont section of the State. Resistance to soil-borne mosaic characterizes the new variety. It is resistant to Victoria seedling blight, culm rot and crown rust. In five years of testing, Bruce has exhibited high test weight combined with yields, plant height and maturity similar to Sumter. It is an acceptable forage variety. Foundation seed was distributed in 1966.

Cayuse (C.I. 8263) is a short, stiff-strawed spring oat selected from a Craig-Alamo cross by Dr. Neal F. Jensen, Cornell University and jointly released by the Idaho and Washington AE Stations. Its performance in the Northwest is outstanding. Under irrigation at Aberdeen, Idaho, Cayuse averaged 205.6 bushels per acre in 1965 and 1966 compared to 199.4 for Bingham and 179.6 bushels for Park. During the same period at Twin Falls, Cayuse averaged 167 bushels, Bingham 160.4 and Park 149.5. In eastern Washington, Cayuse outyielded all other varieties, averaging just over 100 bushels for three years. In western Washington its 6-year average is 98 bushels with a range of 44 to 182 bushels. Resistance to yellow dwarf is considered a key factor in these yields. In test weight, Cayuse falls below established varieties but not too low for acceptance. Certified seed production is scheduled in 1968.

Holden (C.I. 7978) was released to certified seed producers this year by Wisconsin AES. Outyielding Garland by some 5 bushels in State trials, it did not equal Lodi. In lodging reaction and test weight the two varieties are similar. Holden is about an inch taller than Garland and a day later in maturity. The area of adaptation in Wisconsin is expected to be slightly wider for Holden. The two varieties are similar in disease reaction - resistant to older races of crown rust, intermediate to susceptible to newer races. Both have AB genes for resistance to stem rust, including races 7, 7A and 8. Both are resistant to smuts but susceptible to Barley Yellow Dwarf.

Jaycee is an early, short-straw, high yielding oat developed cooperatively by the Illinois AES and USDA from the cross (Clintland 3 x Garry 3 x Hawkeye x Victoria 4) x Putnam. Test weights are high. Kernels are medium to large and plump in appearance. But the hulls are thicker than of several other varieties. Lodging resistance is good. In tolerance of Barley Yellow Dwarf, Jaycee excels all other varieties grown in Illinois. It is resistant also to stem rust races 6, 7, 7a and 8; and to races 203 and 216 of crown rust but susceptible to the Landhafer-susceptible races of crown rust. Jaycee is resistant to the Clinton-susceptible races of smut that have appeared in Illinois in recent years. Breeders seed will be maintained by the Illinois Station. Foundation and certified seed are available.

Oats (cont.)

Norwin (C.I. 8018) is a winter-hardy oat developed cooperatively by North Texas AES and USDA. Juvenile plants have winter habit but are more erect than presently grown hardy varieties. Leaves are light green, slightly wider than those of the hardy varieties and produce more winter forage. Plants are short, medium straw and white to light red grain. In three years of testing at Bushland and 4 years at Chillicothe it has exceeded presently grown varieties. Test weights are equal. Norwin is susceptible to stem and crown rust. Hence is not recommended for central Texas. It is early enough to escape these diseases in north central parts of the State and sufficiently hardy for the region. Foundation seed is being distributed.

O'Brien (C.I. 8174) is a tall, yet lodging-resistant, early to midseason oat, cooperatively developed by Iowa AES and USDA. Seed are plump and yellow, leaves are yellow-green and droopy. It has resistance to most of the stem rust (6F) and crown rust races (290 and 294.) O'Brien is similar to Nodaway and Burnett in both maturity and test weight but slightly inferior in the latter respect to Goodfield. In standability it excels both Nodaway and Burnett. It is best suited to Northwest Iowa. Parentage of the new variety includes crosses involving Banner, Clintland, Hajira, Roxton, Victoria and Victory. Foundation seed was released last spring to experiment stations in the North-Central region. Also certified seed was produced in Iowa in 1967.

Portal (C.I. 8040) was released to certified seed producers the past spring by Wisconsin AES. There, since 1962, it outyielded Garland by 2.6 bushels but trailed Lodi by several bushels. In test weight and straw strength Portal ranks slightly below Garland; is taller and later. Its area of adaptation in Wisconsin is similar to that of Holden. The new variety is resistant to smuts, but susceptible to Barley Yellow Dwarf. It has the AB genes for resistance to stem rust, including races 7, 7A and 8. It also has resistance to crown rust race 264.

Sumter 3 (C.I. 7886) is a pure line selection from Sumter made at the South Carolina AES. Similar to its parent in maturity, height, straw and disease reaction, the new variety has averaged in 5-year tests two pounds heavier test weight and 6 bushels higher yield. Plants are much more uniform. Sumter 3 is considered an acceptable forage variety. Foundation seed was first supplied to certified seed producers in 1966.

Barley

Barsoy (C.I. 11904) is a winter barley developed by the Kentucky AES. It was named to indicate the new variety's value in the region's popular barley-soybean cropping system. It originated from the cross 'Aizu 6' (C.I. 9016) x 'Dayton' (C.I. 9517). Barsoy has been tested six years in Kentucky and two years in locations ranging from Florida to Canada and westward to Nebraska and Kansas. It appears most useful in areas now served by Dayton and Kenbar. In Kentucky trials, over 3 years, Barsoy compared with Kenbar and Dayton respectively as follows: yields 58 bushels vs. 48 each; test weight 50 lbs. vs. 46 and 45; height 33 inches vs. 37 each; lodging percentage 8 vs. 40 and 26; and heading date April 24 vs. April 29 and 28. Threshing quality is good. Barsoy is susceptible to loose smut, has some resistance to mildew. Registered seed was produced this year; supplies should be reasonably plentiful for 1968 planting.

Harland (C.C. XVI) (C.I. 13445) is a product of recurrent random recombination using selections drawn from parent composites of F₁₀ and F₂₈ generations. The 1967 crop of Harland is an F₁₃. C. A. Suneson, California AES, originator, describes the new barley as "a type of self-perpetuating hybrid..." with "no great production or seed cost problem." It is proposed in California that Harland be limited to winter planting for feed use.

Jefferson (C.I. 11902) a product of Purdue-USDA cooperation, is an awnleted counterpart of Harrison (see New Crop Varieties No. 5, 1963.) Sister reselections from the same F₇ selection of Purdue 466, these two varieties are considered so superior they are the only ones recommended now by the Indiana station. Both are adapted to the northern portion of the winter barley belt, with Jefferson having a slight advantage in hardiness. Both offer outstanding resistance to lodging, high resistance to powdery mildew and scald diseases, and moderate resistance to leaf rust and net blotch. Both are susceptible to loose smut. Harrison (bearded) is the better yielder and has a higher test weight. Certified seed is available.

Luther (C.I. 13340) is a high-yielding feed barley developed by the Washington AES and approved for release in Washington and Idaho. It is a mutant (No. 1538-62) of Alpine (C.I. 9578), induced by chemical treatment, initially selected in 1962. A winter barley that is slightly more hardy than Alpine, Luther can be planted also in the spring according to Washington staff, but when so seeded, it matures late. It is a six-row barley, with dense semi-club head and rough beards that do, however, drop at maturity. The straw is stiffer and some six inches shorter than Alpine. Heading dates are similar for the two varieties. No smut has been observed on Luther in 4 years of testing but the variety is susceptible to yellow dwarf. Seed supplies now limited are expected to be ample in 1968.

Barley (cont.)

Miller (C.I. 13444) is a 6-rowed, awnleted or partially awned winter barley. It was cooperatively developed by the Georgia AES and USDA to provide a leaf rust, powdery mildew-resistant variety for Georgia conditions. It appears to be best adapted to the Upper Coastal Plain and Piedmont Regions of the State. Principal advantage of Miller is its resistance to powdery mildew and prevailing strains of leaf rust. It is susceptible to yellow dwarf. Breeder seed will be maintained by the Georgia Experiment Station, foundation seed by the Seed Development Commission, Whitehall Road, Athens, Ga.

Primus (C.I. 13109) is an early maturing, modified Manchurian spring-type, 6-row barley developed cooperatively by South Dakota AES and USDA. Released as a feed barley, it is now being tested for malting. The new variety combines earliness with high yield and test weight, heat tolerance, drought resistance, stiff straw, low shattering and neck breakage, good threshing qualities and resistance to prevalent races of stem rust. Primus is susceptible to loose smut and leaf and head blights. The new variety is recommended throughout South Dakota. Some 1000 bushels of foundation seed were distributed last spring for increase.

Tschermak (C.I. 7585) is an introduced 2-rowed, winter barley released cooperatively by the New Jersey AES and USDA after testing in cooperative winterhardiness nurseries 1954-57, continuing at the New Jersey station since 1961. Chief interest in the variety is the possibility it will permit production of malting barley in the region. Performance of Tschermak in New Jersey:

	Yield 1961-65 bu./A	Yield '61, '64, '65* bu./A	Spring Survival 1962-63 %	Bu. Wt. 1961-65 lbs.	Lodging 1961-62 %	Heading Date May 1961-65
Wong	63.6	61.1	79	42.3	6	16
Early Wong	65.8	65.1	85	46.2	17	11
Tschermak	56.9	62.6	64	49.8	2	17

* Years when no differential winter killing occurred.

Foundation seed will be maintained by the New Jersey Crop Improvement Association.

Rye

Bonel is an upstanding, dark-green rye noted for winter forage production. It was developed by the Noble Foundation, Ardmore, Oklahoma. Other qualities attributed to the new variety are stiff straw, large high-quality seed and cold tolerance. It matures a little later than Elbon, a variety grown in Oklahoma and States southward. Certified seed will be available in 1968.

Rice

Starbonnet is a long-grain, midseason rice with shorter stiffer straw than a parent variety, Bluebonnet, which it is expected to replace. The new variety is also seven to 10 days earlier. It was developed cooperatively by the Arkansas AES and USDA. Kernels are straw colored and awnless, with a smooth hull. While similar in cooking qualities to Bluebonnet 50, the new variety produced higher grain and milling yields in Arkansas tests. It has fair resistance to straighthead but lacks blast resistance. Seed is available.

Soybeans

Corsoy is a corn-belt soybean variety developed by the Iowa AES and USDA and released this year by stations also of Ohio, Minnesota, Nebraska, South Dakota and Wisconsin. It originated from a 1952 cross of Harosoy and Capital. A mid-season variety, Corsoy is rated similar in performance to Amsoy, Harosoy 63 and Lindarin 63. It is susceptible to phytophthora rot. In soils where phytophthora has not been a problem, Corsoy is superior in yield to Lindarin 63 and Harosoy 63. Corsoy has an upright growth habit, ranks between Amsoy and Harosoy in lodging resistance. In protein content, it slightly exceeds Amsoy. Its oil content is good. Seed supplies are being increased this year.

Custer, our second cyst nematode-resistant soybean variety, (see Pickett, New Crop Varieties No. 7, 1965), was developed jointly by Missouri AES and USDA, with the cooperation of Illinois and Kentucky who shared in the release. Custer is also resistant to phytophthora root rot. In agronomic performance Custer is similar to Scott. Certified seed will be available for planting in 1968.

Soybeans (cont.)

Disoy, Magna and Prize are all large seeded varieties developed for the export market -- particularly the Orient. They were released cooperatively by USDA and the Experiment Stations of Iowa, Illinois, Ohio and Minnesota. The new varieties are not intended to compete with commercial varieties currently grown. Yields are slightly lower and their larger seed require added care in harvesting and handling. Stations releasing them suggest that growers should first consider availability of markets. Seed size averages 60 to 70 percent larger than that of Chippewa and Harosoy 63. In seed quality, protein and oil content, and lodging they are similar. Disoy is 3 to 4 inches taller than Chippewa. Magna and Prize are 6 to 8 inches shorter than Harosoy 63. The three new varieties are susceptible to phytophthora root rot and similar to present varieties in susceptibility to other diseases. Seed for commercial production will not be available until 1969.

Dyer, a third cyst nematode-resistant variety, was released jointly by the experiment stations of Tennessee and Missouri and USDA. Both States produced foundation seed in 1966. Tennessee will maintain breeder seed. Dyer is 21 days earlier than Pickett and 5 days later than Hill, a variety it closely resembles. It is more susceptible to phytophthora root rot than Hill. In a 3-year study on cyst-nematode-infested soils in Tennessee, Dyer outyielded Hill 45 percent. In 1966 strip plantings on 14 west Tennessee farms where cyst nematodes had been identified, Dyer averaged 32.2 bushels as compared with 18.5 for Hill. In regional tests at 30 locations in the South on soils not infested, Dyer averaged 6 percent below Hill in 1965 and 2 percent below in 1966.

Verde is a green-seeded, vegetable soybean suitable for freezing or canning jointly released by Delaware AES and USDA. In Delaware the crop reaches maturity for processing in 85 days and for combining in 118 days. Seed are large and flavorful. Three year yields in Delaware approximate 2000 pounds for processing, 25 bushels at combining. Verde has resistance to downy mildew, purple stain, and pod and stem blight. Seed is being increased this year. The Delaware station will maintain breeder seed.

York, a selection from the cross Dorman x Hood, was released by the Virginia AES cooperatively with USDA and the Maryland the North Carolina stations. In 3-year tests at nine locations in the three States York outyielded Hill by 15 percent and Dare by 8 percent viz. 38.4, 33.4 and 35.5 bushels, respectively. York was most outstanding in the Coastal Plains areas of these States. It matures 10 days after Hill, about the same time as Dare. Plants are well branched with heavy foliage and good, but not outstanding, seed-holding qualities. Seed are large, yellow, free of mottling. Purple stain resistance is good. Seed supplies will be limited until 1969.

Safflower

UC-1, a product of the California AES, is identical in appearance with US-10. Both varieties are spiny, have yellow flowers, are the same height and flower at the same time. 1966 yields at Davis of seeds and oil were similar. The primary difference between the two is the presence of a genotype in UC-1 that switches the proportions of linoleic and oleic acids present in US-10. The oil of UC-1 is similar chemically to olive oil and is promising for cooking purposes. So significant is this difference that UC-1 is described as being, in a sense, the first variety of a new crop. Seed certification by the California Crop Improvement Association is anticipated.

Flax

Mac is a winter-type flax considered one of the most cold-tolerant varieties. It was developed by Texas AES and USDA. When fall seeded it branches profusely, blooms and matures about the same time as its sister strain Dillman (see New Crop Varieties, No. 7, 1965), and stands somewhat taller though not as tall as DeOro. Flowers are blue, the seed brown. Mac is resistant to rust races 228, 258, 297, 299 and 312. It is tolerant to curly-top but susceptible to pasmo. Certified seed is available.

Cotton

Acala Imperial was developed cooperatively by the California AES and USDA for the hot valleys of southern California that do not require the tolerance to verticillium wilt necessary in wilt-infested areas of the Southwest. It may not be adapted to cooler climates. Under southern California conditions Acala Imperial has excellent seedling emergence and vigor, contributing to early stands. At maturity, its stiff stalk with fruiting branches well off the ground minimize boll rot and permit efficient machine harvesting. Compared with Delta types in the Imperial Valley, Acala Imperial gives satisfactory lint yields and improved fiber quality. Seed is available.

Cotton (cont.)

Acala SJ-1, described as an improvement over Acala 4-42, the most widely grown variety in California, was developed cooperatively by USDA and the California AES. Compared to the older variety, Acala SJ-1 retains a higher percentage of its flowers particularly during the midseason fruiting period, allowing more fibers to develop while conditions are most favorable. This advantage also makes possible earlier harvest. Structure of the plant also favors machine harvesting. It is taller, somewhat cone-shaped and holds its bolls higher off the ground. Seed is available.

Hancock, a variety characterized by earliness, lint yield and seedling vigor, was released cooperatively by Tennessee AES and USDA. Indeterminate in fruiting habit, the limbs are short and angled upward, presenting a semi-cluster appearance. Bolls are large and defoliation characteristics good, contributing to easy picking by machine or by hand. Lint percentage is declared to be very high, fiber strength is average for local varieties and fiber length is slightly shorter. Registered seed will be distributed for 1968 planting.

Westburn and Lankburn were developed by the Oklahoma AES with the aim of combining the fusarium wilt-nematode tolerance of Auburn 56 with the stormproof qualities of Western Stormproof and Lankhart 57. Initial crosses were made in 1961. Winter crops were grown in Mexico to speed the developmental process.

Westburn compares favorably with Lankhart 57 for fiber length and strength, a little lower in micronaire. The new variety matures early, has excelled other stormproof varieties on infested soil and equalled them on "clean" soil.

Lankburn produces slightly stronger and longer fiber than Lankhart 57 (by 1/32 - 3/323) that is equal or lower in micronaire. The disadvantage of Lankburn is its lateness. Both varieties are susceptible to bacterial blight. A back-crossing program is underway to correct this deficiency.

Parrott 66 is a blight-resistant stormproof breeding strain developed cooperatively by Oklahoma AES and USDA from the cross Parrott x CR-4, a breeding strain. The new variety is similar to Parrott in plant and boll characteristics, its staple is slightly longer under Oklahoma conditions and the bolls rated "semi-resistant." Breeder seed is available in small lots to qualified breeders. Foundation seed is being distributed in limited quantity.

Field Beans

Bigbend and Coulee are early, short-vined, high-yielding Red Mexican bean varieties released jointly by USDA and Washington AES. They resist curly top virus and the common and New York 15 strains of bean mosaic virus. In greenhouse tests Bigbend was more tolerant of aphid-borne viruses than any other Red Mexican variety.

Bigbend matures in 95-100 days; Coulee in 90 days. Bigbend has smaller, more uniform-sized seed and greater tolerance to root rot than earlier maturing varieties of the Red Mexican type. Coulee is more upright in growth habit and bears its seed higher than other Red Mexican varieties. Thus the seed is less subject to rotting and discoloration from contact with the soil. Both have equalled or exceeded older, later-maturing Red Mexican varieties in yield tests under disease-free conditions. Under root-rot conditions Bigbend has excelled. Seed of both varieties is certified in Washington.

Manitou is a new light red kidney bean developed cooperatively by the Michigan AES and the USDA where it is expected to replace the commercial Light Red kidney. Manitou's chief superiority is resistance to all strains of anthracnose. In yield, maturity, plant type and seed quality, Manitou and the old type are equal. Foundation seed is available in limited quantity from Michigan Foundation Seed Association at East Lansing.

Pinguitos is the product of selection begun in 1964 from a small pink bean grown for local markets in Santa Barbara and San Luis Obispo counties, California. Processor interest in its canning potential account for concern in improvement. The bean is described as potato type with self colored pink coat; ranging in its largest diameter from 14/64 to 20/64 inch. The plant is indeterminate in growth habit and matures in approximately 85 days.

Seafarer is an early bush type navy bean developed cooperatively by Michigan AES and USDA. Combining as it does, all the desirable qualities of Seaway with a full measure of resistance to both anthracnose and common mosaic, Seafarer is expected to replace Seaway as seed stocks become available. The seed is similar in shape, size and quality to Gratiot; in canning quality it is equal or superior to Seaway or Sanilac. Seafarer outyielded Seaway by 1.9 bushels in 18 location-year tests. Foundation and certified seed is in production.

Alfalfa

Apex, a product of Rudy Patrick Seed Division, W. R. Grace and Co., is a reasonably uniform upright type, of fast recovery with fall growth habit similar to DuPuits and Alfa. Apex combines high level resistance to pea aphid and resistance to common leaf spot with some resistance to bacterial wilt. In area of adaptation it corresponds to the Flemish varieties.

Arnim is a German variety adapted to the Ranger, Vernal area and distributed in the U.S. by Arnold-Thomas Seed Service. Characterized by a range of flower colors, from dark purple to white, Arnim is erect and leafy but lacks bacterial wilt resistance.

Dawson is an 8-clone synthetic variety developed cooperatively by the Nebraska AES and USDA. Ten North Central States cooperated in its evaluation.

Dawson has high resistance to pea aphids and spotted alfalfa aphids. It is intermediate in reaction to potato leafhoppers and common leafspot--slight improvements over Ranger and Buffalo. It is similar to Ranger in resistance to bacterial wilt and in reaction to other diseases. It is winterhardy--intermediate between Ranger and Vernal. In the absence of economic levels of insects or diseases for which Dawson was developed, forage yields were similar to the average of check varieties. Seed yields were satisfactory in California, Nebraska, Nevada and Washington. The area of adaptation for forage production appears to be similar to that of Ranger.

Delta was developed cooperatively by USDA and the Mississippi AES. There its persistence in heavy clay soil has been noteworthy. This trait is believed to be associated with tolerance of the new variety to root and crown rots, leafhopper yellowing and certain leafspot diseases. Certified seed is in production.

DuPuits is of Flemish origin, handled in the U.S. by Northrup, King & Co. Plants are erect, relatively stemmy with large round leaves of dark green color. It is more winter hardy than Buffalo but less hardy than Vernal. DuPuits has good seedling vigor and early spring growth.

Embro A-59, a variety for hay or pasture, adapted to the hay-producing areas of the Central U.S. It originated from clones selected from Vernal, Ranger, and Common alfalfas. The variety is handled by Ed. F. Mangelsdorf & Bros., Inc.

Alfalfa (cont.)

Fremont is a high-seed-yielding variety, resistant to bacterial wilt and winter injury, developed by the Wyoming AES. It is rated intermediate to above among the better adapted varieties in forage yield in Wyoming and western Nebraska. It is a synthetic of five clones that survived rigorous selection and screening, begun in 1938-39 among plants that for 25 to 35 years had withstood severe winters and, in cases, bacterial wilt. Selection was geared to wilt resistance, forage quality, forage and seed yield. The probable areas of adaptation are the hay-producing areas of Wyoming and western Nebraska and others with similar climate.

Scout is an 8-clone synthetic variety that traces to Vernal, Narragansett, Ranger, Buffalo, Cossack and Ladak. Parent clones were selected for one or more of the following: Vigor, common leafspot resistance, potato leafhopper resistance, and wilt resistance. Growth habit of Scout is variable, with some erect and some prostrate plants. Recovery after cutting is slightly faster than with Vernal. It blooms slightly earlier than Vernal or Ranger. Scout is handled by Calapproved Seed Growers.

Stride is a synthetic adapted primarily to use as a hay crop in short rotation in the Central Corn Belt. Its late fall growth (early November in California) averages some 14-16 inches following early October irrigation in comparison with 9-10 inches for Ranger. Plants are tall, upright, and bloom 4-5 days earlier than Ranger. Stride is susceptible to spotted aphid, bacterial wilt, Phytophthora root rot, and leaf rust. It is moderately resistant to other foliage diseases, including mildew. The pods are normally coiled, predominantly dark grey to black. This variety is handled by Caladino Farm Seeds, Inc.

522 is a 20-clone synthetic developed by the Arnold-Thomas Seed Service, and distributed by that company. It is similar to Vernal in its growth habit, disease reaction and area of adaptation. The occurrence of yellow and light flowered plants is more frequent than found in Vernal.

Trefoil

Leo is a winter-hardy variety of Canadian origin developed by mass selection from introductions from the USSR. In plant type it ranks between Empire and Viking. Macdonald College, Quebec, Canada, is the indicated source of additional information on characteristics and seed supplies.

Arrowleaf Clover

Meechee (P.I. 233782) was released by the Mississippi AES last fall following cooperative evaluation with the Soil Conservation Service. It is the third variety released of this new winter annual since its introduction in 1956 by USDA. Of these, Amclo (see New Crop Varieties No. 5, 1963) is earliest, Yuchi (New Crop Varieties No. 7, 1965) is midseason and Meechee is the latest in maturity. In adaptation, the three varieties find greatest favor respectively in Georgia, Alabama and in the mid-south States Mississippi, Louisiana and Arkansas.

Bromegrass

Regar meadow bromegrass is described in Idaho as a long-lived rapid-developing bunch grass. The leaves are soft, pubescent, semi-erect and predominantly basal. Earlier than smooth brome in spring growth and recovery from cutting, Regar distributes its yield throughout the season. It appears to be adapted to seeding with alfalfa or clover for hay, pasture or silage. Regar is generally adapted to the same soils and areas in Idaho as smooth bromegrass, under both irrigated and dryland conditions.

Limited supplies of certified seed are available.

Bluegrass

Kenblue, developed by the Kentucky AES and USDA, is a native Kentucky bluegrass that is distinctive for its known origin. It was first certified this year. The new variety represents a blend of seed taken from selected seed fields of 8 to 15 years standing, situated on 12 farms in seven central Kentucky counties. After blending, part of the seed was used to establish a breeder's seed block on the University farm. The remainder was distributed to certified seed producers.

Bermudagrass

Coastcross I is a completely sterile F₁ hybrid between Coastal bermudagrass and Kenya 14 (P.I. 255445) that features superior digestibility. It was developed jointly by the Georgia Coastal Plain Station and USDA. Taller and with broader leaves than Coastal, the new variety develops rapidly, spreading stolons but few, if any, rhizomes. It is resistant to foliage diseases and apparently resistant to the sting nematode. Coastcross I yields about as well as Coastal and consistently excels it in digestibility--by some 11 to 12 percent as measured by the nylon-bag technique. A recently completed feeding trial indicates that cattle will make better gains on Coastcross I. It is, however, a little less winterhardy than Coastal bermudagrass. For this reason use of the new variety in Georgia is not recommended above the fall line. Certified sprigs will be available in 1968.

Santa Ana, developed by the University of California at Riverside, was released last spring. It has shown up exceptionally well in southern and central California. Characterized by a deep blue-green color and medium-fine texture, its color retention in cool weather is excellent. Santa Ana establishes itself quickly, producing a smooth, even surface. Resistance to foot traffic is high, as is its tolerance to some difficulties common to the Southwest. Included are smog, that discolors the Tifway and Tifgreen varieties, and the bermudagrass Eriophyid mite which severely injures common bermuda. Though bermudagrass is tolerant of soil salinity, Santa Ana ranks as one of the most tolerant turf varieties. Flower stems may appear at times, but viable seed is not normally produced.

Bluestem

Blaze little bluestem was developed at the Nebraska AES in cooperation with USDA by the selection and hybridization of clones from 1953 collections in Nebraska and Kansas. It is a winterhardy, late maturing variety. Plants are large with average height of 30 inches and 15 inch spread. Seed quality is superior and seedling vigor sufficient to obtain stands under severe weed competition. The variety is recommended for use in Central and Eastern Nebraska. Certified seed producers were supplied foundation seed this year.

Buffelgrass

Higgins buffelgrass is an apomictic strain selected at the Texas AES in 1962 from the selfed progeny of a heterozygous sexual plant. Combined in the new variety are several desirable characteristics of present varieties it is expected to replace. It produces high yields of good quality seed like T-4464 buffelgrass with rhizome development similar to Blue buffelgrass, assuring rapid spread and persistence. Higgins is intermediate between the two older varieties in winterhardiness. Forage yields compare favorably. The foliage is green and inflorescence a brownish-wine color. Foundation seed is distributed by the Texas Station, Foundation Seed Section.

Switchgrass

Pathfinder switchgrass was developed at the Nebraska AES in cooperation with USDA, by selection and hybridization of lines tracing to 1953 collections. The resulting synthetic has been evaluated through four generations. The new variety is winterhardy, vigorous, leafy, late maturing and rust resistant in its region of adaptation, considered to include areas suited to switchgrass throughout Nebraska and adjacent States. Its performance has been superior in terms of establishment, forage and seed production and grazing results. It provides abundant summer grazing. Pathfinder requires a relatively long season for seed maturity. Foundation seed was furnished this year to certified seed producers.

Rhodesgrass

Bell is an upright scale-tolerant variety, suited to the south Texas and lower Gulf Coast where temperatures remain above 12°F. It was developed at the Texas Research and Extension Center at Weslaco from plants of adapted varieties selected for scale tolerance. In Texas tests, Bell produced yields equal to Australia and G-77 rhodesgrass in scale-free situations; in scale-infested plots it yielded significantly more hay than either. Seed is available from Foundation Seed Section, Texas Experiment Station at College Station.

Sudangrass

Cumberland is a synthetic involving California 23 and Piper sudan, and Leoti sorghum. It was developed by the Tennessee AES. Outyielding such varieties as Piper and Greenleaf in Tennessee tests by 15 percent of dry matter, Cumberland has excelled these varieties also in several surrounding States. Contrary to the tendency of high-yielding sorghum hybrids toward high-level prussic acid potential, Cumberland compares with the sudans in this respect. Its resistance to leaf diseases is similar to that of improved sudan varieties. Certified seed is available.

Millet

Panhandle is a Nebraska selection from common white millet, expected to replace Turghai. Seed is creamy white, average in size and high in test weight. Heads are semi-compact; shattering is average. Stalks are medium in height, with fair strength and relatively early maturity. Panhandle has consistently outyielded all varieties of Proso millet in Nebraska tests. It is recommended for the panhandle section of western Nebraska from whence it takes the name.

