breeders because they have a type of flower that is easier to pollinate by hand than several other male-sterile flower types. The stigma protrudes well above the corolla and pollen can be applied without the time-consuming effort of first splitting the corolla to expose the stigma.

The male-sterile lines have a slightly lower value per hectare than their recurrent parent but are equal in all other agronomic and chemical traits measured. In addition PDMS-1 has good resistance to black shank caused by Physophthora parasitica var. nicotianae (Breda de Hann) Tucker. This type of male sterility does not have the slow growth characteristic that is associated with some other types of male-sterile tobaccos. The flowers from the undulata type have a tendency to dehisce more readily than other male-sterile types under adverse weather conditions.

Small amounts of PDMS-1 and PDMS-2 seeds can be obtained by Experiment Stations and seed producers for breeding purposes. Request should be made to Tobacco Breeding and Disease Investigations, Tobacco Research Station, Oxford, N. C. 27565.

REGISTRATION OF PD 468 TOBACCO GERMPLASM

James F. Chaplin

PD 468 tobacco (Nicotiana tabacum L.) is a black-shank-resistant, flue-cured tobacco breeding line with the pedigree (4N '402' × N. plumbaginifolia Viv) × 'Golden Wilt' × Golden Wilt). It was in the BC<sub>3</sub> generation from the last cross when released. The line was released jointly in 1963 by the South Carolina Agricultural Experiment Station, and the Crop Research Division, Agricultural Research Service, U. S. Department of Agriculture.

Black shank (Physophthora parasitica var. nicotianae (Breda de Hann) Tucker resistance in PD 468 was obtained from N. plumbaginifolia and transferred to N. tabacum by the use of a 4N tabacum in the original interspecific hybridization. This was the first time a breeding line, having black-shank-resistance from N. plumbaginifolia with flue-cured characteristics was made available for use in developing commercial cultivars.

Tests in South Carolina showed that PD 468 compared favorably with commercial flue-cured tobacco cultivars in most agronomic and chemical characteristics. Nicotine was higher and sugars lower than for 'Hicks.' PD 468 was lower in yield than most commercial cultivars.

Seed of PD 468 can be obtained by Experiment Stations and seed producers for breeding improved cultivars resistant to black shank. Request should be made to Tobacco Breeding and Disease Investigations, Tobacco Research Station, Oxford, N. C. 27565.

REGISTRATION OF TRANSEC WHEAT GERMPLASM

C. J. Driscoll and N. F. Jensen

'Transec' wheat, Triticum aestivum L. em. Thell., C.I. 14189, was developed as an elite germplasm at the Cornell University Agricultural Experiment Station and released to plant breeders in 1965. It is an advanced generation of X-irradiated Cornell Wheat Selection 82al-2-4-7 × Chinese Spring. Selection 82al-2-4-7, which possesses a pair of rye (Secale cereale L) telo-centric chromosomes bearing resistances to wheat leaf rust (Puccinia recondita Rob. ex Desm.) and wheat powdery mildew (Erysiphe graminis tritici March), was irradiated at the Brookhaven National Laboratory in September 1959 at the request of the authors.

Transec is homozygous for a translocation involving a segment of rye chromatin which bears both resistances. It is mitotically stable with 21 pairs of chromosomes and pure breeding for the resistances. The translocated rye segment is located one map unit from the centromere on the left arm of chromosome 4A.

The resistances behave as if they are due to the same gene or to two permanently linked genes in coupling. If two genes are involved the rye segment between them may in fact be quite long. No crossing over would be expected in this segment as this would involve exchange between wheat and rye chromatin. As a result, selection for one resistance in segregating populations automatically involves selection for the other resistance. Both resistances operate in the adult stage against all known physiological races of the two pathogens.

When heterozygous the male transmission rate of the resistances varies from approximately 25% to 50%, depending upon genetic background. This indicates that these alien resistances may be tolerated in some genetic backgrounds but not others.

Transec, which has a spring habit of growth, was released for use as a parent in breeding programmes. Seed of Transec is maintained at both Cornell University and The University of New South Wales and may be obtained from either author at the addresses shown.

CORRECTION

The article "Varietal Effects in Soybean Photosynthesis and Photorepiration" by Curtis, Ogren, and Hagenau on pages 323-327 of the May-June issue contains two errors. The fourth line from the bottom of column 1 on page 326 should read "from 0.2 to 1.0 times as great . . . ." The numbers on the ordinate of the graph in Fig. 2 should be 0, 100, 200, 300, and 400 instead of the values shown.