Reference to CAMV Omitted in Article on Cowpea Virus

In the article "A Seedborne Potyvirus Causing Mosaic of Cowpea in India" in the October 1980 issue of PLANT DISEASE (page 925), the properties of the virus described—host range, in vitro characteristics, particle dimensions, serological affinity with BYMV, seed and aphid transmission, etc.—are practically identical with those of cowpea aphidborne mosaic virus (CAMV), which has been reported in both Europe and Africa.

CAMV has been fully described in the C.M.I./A.A.B. Descriptions of Plant Viruses, No. 134, 1974. I wish to point out that no reference was made to CAMV in the paper published in PLANT DISEASE.

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Report on ISEM: Scientific News or Scientific History?

I read with interest the report in the Scientific News section of the February 1981 issue of PLANT DISEASE (page 202) about a technique for detecting plant viruses that is a thousand times more sensitive than conventional electron microscopy. Since immunosorbent electron microscopy is a recent addition to the list of several alternate names that have been suggested for a technique that was described in 1973 (*Virology* 65:652), this item might have been more appropriate in a section on scientific history.

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R. James Cook replies: Scientific News is intended as a service to the readers of PLANT DISEASE. The intent is to call attention to contributions outside APS publications, and often outside the immediate field of plant pathology, that seem particularly relevant or potentially significant to plant pathology. Only articles from recent issues of peer-reviewed journals are selected.

The item on immunosorbent electron microscopy was not presented as a new technique, either in the paper cited or in the news item itself. Rather, the item reported the application of ISEM to nepoviruses in nematode vectors, the use of ISEM for detection of virus in single nematodes, and limitations of the method for detection of virus in specific parts of nematode vectors.

Inevitably, not every item will be news or of interest to all readers. Hopefully, most readers find something of use or interest each month. Suggestions for news items and for ways to improve Scientific News are always welcome.

Phytomass and Epiphytotic, When Plants Are Discussed

Plant scientists should watch their language when using the words *biomass* and *epidemic*. Biomass refers to the total biological content of a given area—plants, shrubs, trees, and animals. Epidemic refers to *human* disease running rampant.

The recent search for crops that will produce a large amount of plant material per unit area has resulted in a plethora of papers that use the word *biomass* for representing the aerial (culms, leaves, etc.) or subterranean (tubers, roots, corms, etc.) portions of the plants. This term is incorrect because it includes the other organisms, such as worms, insects, birds, alligators, and even mammals. The Greek prefix "bio-" means life.

Another term, *epidemic*, is often used incorrectly in the plant literature. The "demi" part of the word means people (demos) and has nothing to do with phytopathology. A notable use of the word is in the section New Diseases and Epidemics in PLANT DISEASE.

I propose using the word *phytomass* instead of biomass and *epiphytotic* for epidemic when plants are being discussed. To offer precedence as an excuse for incorrect usage serves merely to compound or perpetuate error. I urge editors and reviewers of scientific journals to encourage correct word usage and to persist in discouraging inexact use. I appeal to plant scientists to state clearly and precisely the results of their investigations. We are indeed fortunate that our societies have excellent handbooks and style manuals and ever-vigilant editorial committees that help assure good journalism.

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Blight-Resistant American Chestnut: There's Hope

The American chestnut (A), *Castanea dentata* Borkh., excels in nut quality and hardiness and has a growth form suitable for timber but is highly susceptible to the chestnut blight disease caused by *Endothia parasitica* (Murr.) And. The Chinese chestnut (C), *C. mollissima* Blume, is highly resistant to the disease, and the Japanese chestnut (J), *C. crenata* Sieb. & Zucc., is somewhat less resistant, but both have poorer nut quality, are less hardy, and have a growth form not suitable for timber.

There is still hope for breeding to produce a blight-resistant American chestnut. The goal of a breeding program is to transfer blight resistance to the American chestnut. The backcross method of breeding should accomplish the transfer, but the recurrent parent must be the variety being improved, the American chestnut.

The C × A and J × A F_1 hybrids produced in the late 1920s at the Connecticut Agricultural Experiment Station, New Haven, and at the U.S. Department of Agriculture were intermediate in blight reaction (partial dominance of resistance). This is ideal for the backcross breeding method, since trees carrying the gene or genes for resistance can be recognized and selected for the next backcross. By the time the backcross progeny begin flowering (5–8 years), the ones susceptible to blight should have been eliminated. By keeping the identities of parent trees and progeny, any not carrying those genes and used for backcrossing, etc., can be eliminated. Trees from the third and later backcrosses should closely resemble the American chestnut. Since the chestnut is self-incompatible, the trees that survive the blight and, therefore, are carrying the gene or genes for blight resistance would need to be interpollinated to produce a segregating population that would include trees homozygous (true breeding) for chestnut blight resistance.

Two types of separate, isolated seed orchards, *A* and *B*, should be established. The *A* seed orchard would be solely for progeny from backcrosses to the American chestnut. The nuts produced by open interpollination of the survivors from blight in the *A* orchard would be grown in the *B* orchard reserved solely for them. In the *B* orchard, only the highly resistant ones, those homozygous (true breeding) for chestnut blight resistance, would be allowed to survive. Open interpollination of these would produce the progeny needed to reestablish the American chestnut in its original range and for use elsewhere.

The same breeding program could be used to select for a nut tree hardier than the Chinese chestnut, now being sold by nurseries.

The following is a brief survey of what was done in the breeding programs. Its purpose is to direct attention to trees that may be growing now that could be used to resume a backcross breeding program, possibly to make the second backcross to the American chestnut this crossing season.

Most hybrids were backcrossed to the Chinese chestnut, but there were JA × A backcrosses growing in 1940 in the planting at Hamden, CT. Also in 1946, 1950, and 1953, C × A and CJ × A hybrids were backcrossed to the American chestnut. These first backcross progeny were included in at least some of the 15 test plantings established during 1949–1953 in 13 states. Berry (1980) evaluated the various test plantings. These plantings also included C × CJ, C × C, C × CA, C × (J × JA), C × JA, C × A, and (C × JA) (C × JA) hybrids. A test planting at Pruntytown, WV, included some first backcross progeny. One tree in the plot near Carterville, IL, described as one of the most promising hybrids, was from a (C × A) × A backcross. This tree, known as the "Clapper" chestnut, was killed by blight by 1978. A graft increase of this tree is growing in Virginia. Are there any others?

American chestnut trees, wherever they may be growing, could be used as female parents for pollen from any of the first backcross progeny that have survived the blight. These should be carrying the gene or genes for blight resistance. There are American chestnut trees in the University of Minnesota Landscape Arboretum that can be used as female parents for crosses with pollen from first backcross trees. Personnel there will make the crosses. I have at least one source of pollen I hope is from a first backcross. I hope to locate others. If anyone who has American chestnuts and is willing to make the crosses will send me his or her name, I will arrange to have the pollen sent. Anyone who can furnish pollen of one or more trees from the first backcross to the American chestnut should contact me. Controlled, hand interpollinations of those backcross trees could be made to produce progeny for the *B* orchard.

Caution: 1) Pollen from each tree should be collected separately and not mixed with pollen from other trees. 2) A record should be kept of the tree from which each sample of pollen comes.

Arrangements will have to be made later for growing the nuts from those crosses. Questions about the program and procedures may be directed to me, Charles R. Burnham, Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN 55108; telephone: (612) 373-0870.

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