

Geneticists Perfect New Hybridization Method

For the first time, a mature hybrid plant has been grown from fused genetic cells of two different species, completely circumventing the normal sexual and reproductive processes.

The new method, called parasexual hybridization, was developed by biologists at the AEC's Brookhaven National Laboratory (BNL). Although cells have been fused before, they have remained only as cells.

The new result represents the first known case where an entire organism of any higher order of life has been produced by combining two different species in this way.

The new technique was developed by research biologists Dr. Peter S. Carlson, Dr. Harold H. Smith, and Rosemarie D. Dearing. It is reported in the August issue of the Proceedings of the National Academy of Science, under the title "Parasexual Interspecific Plant Hybridization."

The BNL method involves the combining of genetic information contained in cells of different species to generate viable hybrid cells having new genetic characteristics, then inducing the new cells to grow into a mature plant.

The standard genetic method of producing a hybrid is by cross-pollinating mature plants. Most sexual crosses between different plant species do not yield live or fertile offspring since plants as well as animals have specific mechanisms to insure that fertilization with reproductive ability occurs only between individuals of the same species.

The new technique of parasexual hybridization circumvents many of these natural barriers to intergenetic reproduction, and opens the

potential of cross fertilization at the cellular level between widely divergent plant species.

The Brookhaven success represents the application of results from three widely separated basic research programs:

(1) Plants of the same species has previously been grown from wall-less cells in Japan.

(2) The fusing of wall-less cells had been done in England, but they remained as cells.

(3) In their own laboratory at BNL, the biologists had developed a technique to select from millions of viable cells the few that had the desired hybrid characteristics.

The final parasexually produced hybrid at BNL is extremely significant to agriculture because it represents the potential for genetically developing totally new crop species or the modification of existing species having improved yield, resistance to disease, etc.

For example, one can imagine that it might be possible to devise plants which produce edible food above ground and an edible root below ground. This would cause

(Continued On Page 29)



Scientists at the Atomic Energy Commission's Brookhaven National Laboratory examine a hybrid tobacco plant created by a new technique which bypasses the natural restraints on cross breeding of different species. The technique is called

parasexual hybridization. It involves fusing genetic cells from different species. The result is new cells which contain an entirely new set of genetic characteristics and which can reproduce themselves. The work opens up important new possibilities for creating plants to meet specific needs.



MR. FARMER

Have you tried WL 306 Alfalfa in your Roughage Program?

TRY IT YOU'LL LIKE IT.

—WL306 Alfalfa has all these desirable advantages:—

- | | |
|---|------------------------------|
| 1. RESISTANT TO BACTERIAL WILT, ANTHRACNOSE, SPOTTED ALFALFA & PEA APHIDS | 6. FAST RECOVERY |
| 2. FINE STEMMED & LEAFY | 7. SEMI- FALL DORMANCY |
| 3. PRODUCES "TOP QUALITY" HAY | 8. ADEQUATE WINTER HARDINESS |
| 4. STRONG STAND ESTABLISHMENT | 9. GOOD PERSISTENCE |
| 5. RAPID GROWING | 10. HIGH YIELDS |

Red Rose Dealers Listed below Stocks a

Complete Selection of Alfalfas - Clovers - Grasses -

Seed Wheat and Barley

TO FIT YOUR NEEDS IN FERTILIZER.

WE OFFER AGRICO WITH A WIDE SELECTION OF ANALYSIS IN EITHER BAG OR BULK

Truck or trailer spreading service available

Red Rose
ANIMAL FEEDS



YOUR LOCAL INDEPENDENT RED ROSE DEALER

IN QUARRYVILLE AREA

RED ROSE

FARM SERVICE, INC.

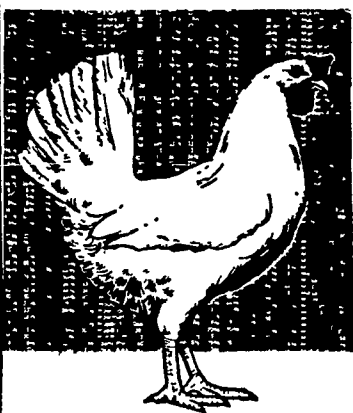
IN ATGLEN AREA

BROWN & REA, INC.

MAIN OFFICE
N. CHURCH ST.
QUARRYVILLE, PA.
786-7361

BUCK, PA.
284-4464

ATGLEN, PA.
215-593-5149



sustain top production with the **BABCOCK B-300**

Keeping production up...costs down...is the profit key in poultry operations. And more and more records on commercial flocks of Babcock B-300's... "The Businessman's Bird"... show sustained production of top quality eggs...often with an additional 20 to 30 eggs per bird housed over other strains. Come in... look at the records and the B-300... "The Businessman's Bird".



BABCOCK FARMS, INC.
Telephone (717) 626-8561