

# Peat may be harvested as energy source

UNIVERSITY PARK — The second largest source of energy in the U.S. — unused but available — is a product estimated to equal about 240 billion barrels of crude oil. That resource is peat, often described as "young coal" and widely converted to electric power in parts of Europe.

Peat has been studied as an alternative to fossil fuels, such as coal and gas, by John W. White at Penn State. White entered the "fuel arena" while testing and developing insulating materials for greenhouses. He serves a dual role as professor of floriculture in the College of Agriculture and as associate director of the Office of Industrial Research and Innovation.

He said the use of "young coal" as fuel in Ireland, Finland, and Russia — especially the latter — shows that peat can compete on a cost basis with other fossil fuels. Russia exports oil, gas, and coal — and has no scarcity of these resources — but at the same time operates about 76 peat-fires electric power generating plants.

"We can assume that using peat in these Russian power plants must be more economical than bringing coal, oil, or gas into the areas of peat deposits," White commented.

Peat is found throughout the

U.S., it was noted, but the largest supplies exist in Alaska (outside of the permafrost regions), Minnesota, Michigan, Florida, Wisconsin, Louisiana, North Carolina, Maine, and New York.

"Many of the peat-rich states have no significant supplies of other fossil fuels," White observed, adding that "countries such as Finland, Sweden, and Iceland have no other fossil fuels."

In its natural state, peat contains about 90 percent water. The water content can be reduced to 50 percent or less by drying peat for a few days. Peat harvested for power generation in Russia, Finland, and Iceland is burned at 35 to 55 percent moisture content.

Experiments are underway to use peat as fuel in the U.S. A study made for First Colony Farms of Creswell, N.C., examined large-scale peat harvesting for power generation. The results showed that it is technically and economically profitable to produce peat for fuel at 35 to 50 percent moisture to airy drying.

White said the peat bogs of the U.S. contain some 53 million acres of this product. World peat resources are estimated to exceed the energy equivalent of 1800 billion barrels of oil.

Burning this fuel would not destroy peat sources used widely in the U.S. as soil conditioners in the field of horticulture. Peat is of three types, it was explained, and the kind used to improve soil —

fibric peats formed from spagnum and other mosses — is not suited for fuel.

The most burnable type is hemic peat — formed from reeds, sedges, swamp plants, and trees. Such peat has a higher heating value than fibric peat. The third type is sapric peat. Thoroughly decomposed, sapric peat burns poorly in generating power.

The Penn State scientist cautions that large-scale use of peat for fuel should be evaluated first for its effect upon the environment, as

with development of any alternative energy source. For example, the harvesting plan should include control of surface and groundwater flow throughout a project area.

"Peatlands are wetlands. It may be desirable to preserve and protect such wetlands to preserve certain unique biological species," he stated, adding that "work must be done to identify such areas."

On the other hand, large-scale use of peat can improve productivity of land. Relatively few of the

peatlands in the U.S. are productive today except for removing peat. Harvested peatlands can be used to grow some crops, White said, or can become wildlife habitats, lakes, ponds, and energy farms.

In Europe and Canada, harvested peatlands have been used successfully for farming. First Colony Farms in Creswell, N.C., mentioned earlier, have reclaimed harvested peatlands for agricultural uses.

## USDA traps over-wintering Medflies

NEW YORK, N.Y. — The presence of wild Mediterranean fruit flies, trapped within quarantine areas of California recently, was "expected and anticipated," according to an official of the U.S. Department of Agriculture.

"This latest trapping of emerging 'overwintering' populations of Medflies is not an indication of a new infestation, and therefore, is not a cause for alarm," said Bill Helms, associate deputy administrator with USDA's Animal and Plant Health Inspection Service. "We expected it, and anticipated it."

"Pupae in the soil were slowed down in their development because of cooler temperatures. Now they are emerging, and we are trapping some of them," Helms said. "The

Medflies we're trapping — the latest in Santa Clara and Los Gatos — are ones in which lifecycles were extended because of the cooler temperatures".

The criterion for determining whether a problem is occurring is contained in the newly released Mediterranean fruit fly environmental assessment. The test is directed toward a spring population which is reproducing itself, not just the 1980 "late bloomers."

"If a number of wild Medflies are trapped after a specified period of warmer soil temperatures," Helms said, "that would suggest that new reproduction was taking place."

Wild Medflies are being closely monitored with traps set by USDA and California Department of Food and Agriculture authorities.

"Along with the traps, we currently have equipment in the ground to monitor soil temperatures so that we can better estimate when most of the overwintering emergence is completed," Helms said.

While the latest trapping results revealed the presence of the oncedormant "native" population, the traps also catch sterile Medflies.

Medflies are rendered sterile or incapable of producing progeny when they are irradiated in an early stage of development. Releases of sterile Medflies in hopes of eventual eradication in an

infested area continued through the winter months. These sterile fly releases were supplemented by repeated ground applications of a malathion/protein bait spray to attract and kill the fruit and vegetable nest.

Sterile Medfly rearing facilities in Hawaii are maintained by the USDA's Science and Education Administration and by the California Department of Food and Agriculture. Facilities under the sponsorship of APHIS in Mexico and a Peruvian source also produce sterile Medflies used in the California eradication program.

"The total number of sterile Medflies — since June 1980 — as of May 7 released by air and on the ground is more than 2.6 billion flies," Helms said.

The latest catch, May 7, was of three immature females; one trapped in the city of Mountain View and two in San Jose. As of May 7, a total of 262 wild native Medflies have been trapped by USDA workers since June 1980. None of the 26 native wild Medflies caught since January of this year were male, Helms said.



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