

hungry people who are short of purchasing power, either because of unemployment or underemployment.

I am glad to see that you as a medical doctor continue to have interest in the land and soil fertility, food production, human nutrition and environmental issues.

Sincerely,

NORMAN E. BORLAUG

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## David Pimentel Comments

June 26, 2003

Dr. John H. Tanton, MD.  
The Social Contract  
445 E. Mitchell Street  
Petoskey, MI 49770-2623

Dear Dr. Tanton:

Many thanks for your letter concerning energy questions and the interview with Jim Woolsey. Incidentally, I just substituted for Jim Woolsey at a conference on renewable energy at the National Defense University. I note that we agree that ethanol is a loser, but I do not agree with JW concerning the use of crop residues.

Before I comment about the problems with using *crop residues that you identified*, I am sending you under separate cover a copy of our paper on ethanol that is due to appear in *Natural Resources Research* next month.<sup>2</sup>

Like you, I have been adding leaves to my garden and also using the leaves as mulch. I get two large (2.5 ton) truckloads of leaves dumped on my lawn each year. The Village of Cayuga Heights collects these leaves from people who place them in rows along the front of their lots. I then use them to add carbon and nutrients to my soil. After 25 years of applying leaves to my garden, my soil is a beautiful black color and can be worked with only a hoe without tillage.

It would be a disaster to remove crop residues from our agricultural land. The average soil erosion on cropland in the U.S. is about 20 t/ha/yr, which is about 10 times the soil sustainability rate. If crop residues were removed as proposed by JW, erosion rates would increase more than ten-fold. Incidentally, Dr. Troeh at Iowa State University reports that about \$20 billion in fertilizer nutrients are lost each year due to soil

erosion.

Few people appreciate that it takes 500 years to replace 1 inch of soil under agricultural conditions and we need a minimum of 6 inches to grow a crop. I personally rank soil erosion, after population growth, as the most serious environmental problem worldwide. Soil erosion rates are intensifying in most developing countries because of wood fuel shortages and the people are forced to burn crop residues — a disaster!

Again, thanks for writing about an important concern that we both have. Harvesting crop residues from our land will lead to wholesale destruction of the land and damage its productivity.

Best wishes,

DAVID PIMENTEL

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### NOTES

1. "Woolsey On Alternative Fuels" by Bill Moore, EV World, March 8, 2003, [www.EVWorld.com](http://www.EVWorld.com). In this paper, James Woolsey, former director of the CIA calls for turning agricultural "waste" (including manure!) into fuel (ethanol/gasohol).
2. News of Dr. Pimentel's article can be found at: [http://www.news.cornell.edu/releases/Aug03/ethanol\\_subsidies.htm](http://www.news.cornell.edu/releases/Aug03/ethanol_subsidies.htm).

### You Can Make a Difference

Please join the Sierra Club in time for the Spring vote. In 2002 and 2003, Sierra Club members elected Board members truly concerned about rapid and endless U.S. population growth. Please help elect more strong conservationists — leaders who will redirect this vital organization toward genuine environmental stewardship, which must include U.S. population stabilization.

If you are concerned about the environment and are not a member of the Sierra Club, please join by year-end so that you can vote in the Spring, 2004 election. *Your vote will make a difference.*

Join the Sierra Club for \$25 online at <http://www.sierraclub.org/membership/> or print a mail-in form. Or contact [membership.services@sierraclub.org](mailto:membership.services@sierraclub.org)

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