TESTIMONY OF BURTON C. ENGLISH BEFORE THE JOINT ECONOMIC COMMITTEE AND THE AGRICULTURE SUBCOMMITTEE IN WASHINGTON, D.C.

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by

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Good morning, ladies and gentlemen. My name is Burton C. English. I am a staff economist with the Center for Agricultural and Rural Development located in Ames, Iowa. My area of expertise is in agricultural economics and policy with a special emphasis in soil conservation. I wish to thank you for inviting me here to testify. You will note that the testimony that I am presenting here was written by Earl O. Heady and myself. I send his apologies for not being able to make this hearing, but his schedule would not permit it.

Several complex forces have resulted in increased soil erosion over recent decades. One factor has been the change in technology which eliminates crop rotations to provide soil fertility and pest control. These services can now be provided through chemical inputs and a rotation is no longer necessary. Consequently, farmers have moved to a near monoculture in growing only corn and soybeans in the Cornbelt. Large-scale machinery and equipment also has encouraged this specialization. In earlier days when labor was a more important input in farming, it could be shifted readily among crops, milk cows, hogs and feeder cattle. Now, however, a large-scale combine can not be shifted to produce milk or pork and specialized dairy equipment can't be used to produce crops. With the high fixed costs attached to this large-scale machinery, farmers attempt to produce a large value of one commodity or similar commodities (e.g. corn and soybeans which use the same machinery). Hence, we no longer have many general farms but instead have specialized farms which produce just hogs, produce just corn and

soybeans, etc. Large machinery not only has encouraged greater farm specialization but also tends to discourage such soil conservation practices as contouring, strip cropping and terracing.

Increased soil erosion also was encouraged by rapidly growing exports and high commodity prices in the 1970's. During this time when supply management programs were abandoned over 50 million acres which had been in set aside was shifted into crops. These economic conditions encouraged farmers to "farm their land hard."

Excessive erosion on fragile soils can both reduce long-run productivity and endanger the environment. It is estimated that 80 percent of stream sediment comes from agricultural lands.

Iowa State University (ISU), through its Center for Agricultural and Rural Development (CARD), has been working on the Resources Conservation ACT (RCA) evaluation in cooperation with the U.S. Department of Agriculture (U.S.D.A.). The ISU-CARD models were used to evaluate the impact of various soil conservation programs (or lack of programs) on agricultural productivity, commodity prices, farm income, food prices, export possibilities and related variables.[1] The ISU-CARD models and

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[1] See the following publications which explain in detail the results method of the analysis: English, Burton C. and Earl O. Heady. Short and Long-Term Analysis of the Impacts of Several Soil Loss control Measures on Agriculture. CARD Report No. 93. Center for Agricultural and Rural Development. Iowa State University, Ames, 1980; Daines, David R. and Earl O. Heady. Potential Effects of Policy Alternatives on Regional and National Soil Loss. CARD Report No. 90. Center for Agricultural and Rural Development. Iowa State University, Ames, 1980; Wade, James C. and Earl O. Heady. A National Model of Sediment and Water Quality: Various Impacts on American Agriculture. CARD Report No. 65. Center for Agricultural and Rural Development. Iowa State University, Ames, 1976; Boggess, William G. and Earl O. Heady. A Separable Programming Analysis of U.S. Agricultural Export, Price and Income and Soil Conservation Policies in 1985. CARD Report No. 89. Center for Agricultural and Rural Development. Iowa State University, Ames, 1980.

analysis is continuing in cooperation with U.S.D.A. in preparation for the 1985 RCA evaluation. These analyses are made by models or quantitative models which include all major land classes in 105-223 agricultural regions of the United States. They allow expression of the interrelationships among regions of the nation and land groups or soil types as potential soil conservation programs are implemented or not. For example, they show that some parts of the Southeast or other regions with highly erodable land will sacrifice income and land values if conservation programs bringing soil loss down to t levels are implemented. Simultaneously, other regions without an erosion hazard would gain in farm income and land values. Many other interactions occur among regions and land groups as alternatives in soil conservation policies or erosion patterns are allowed. Some findings resulting from this modeling and analysis work can be summarized relative to questions posed for this hearing.

From our analyses for the RCA evaluation, we believe that an enlarged and more active national soil conservation program should be put into effect. The RCA process should be continued but its findings should be implemented as a national program. A national program is needed because of the interaction among regions and states of the country. Some aspects of soil conservation programs can be left to states and local governments. For example, Iowa has a soil conservancy law which provides a mechanism for controlling runoff and erosion. However, an analysis shows that if Iowa fully implemented this law while other states did not (most states do not have a similar law) net farm income in Iowa would decline

while farm income in the rest of the nation would increase.[1]

Studies also show that if supply control programs of the nature of PIK in force in 1983 or similar programs in effect over most of the period 1950-72 were converted to a set of soil conservation subsidies or cost sharings on the most fragile or erodable land in the nation, supply could be restrained enough to maintain commodity prices at levels attained by conventional supply control or land set-aside programs. The cost of such a conservation program could be considerably less than the PIK or supply control program in effect now or the set aside programs of the 1960s. Fragile or highly erodable soils would be switched from intensive farming and would be concentrated by region. Farmers in other regions not susceptible to heavy erosion would gain through reduced national grain supplies and higher commodity prices. However, since those regions of fragile soils switching to less intensive farming would not gain through higher market prices for grain and cotton, they would need compensation by the public to offset their income reduction.

Some regions of highly erodable soils (e.g., western Iowa, western Tennessee, the Palouse area of Washington, etc.) need not be shifted from row crops and grain production. However, the productivity hazards of soil erosion in these areas cannot be controlled solely through conservation tillage. Adequate control of erosion in these areas can be attained

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[1] Nagadevara, Prasad and Earl O. Heady. Implications of Application of Soil Conservancy and Environmental Regulations in Iowa Within a National Framework. CARD Report No. 57, Center for Agricultural and Rural Development. Iowa State University. Ames, 1976.

only with the use of contouring, strip cropping and terracing -- practices which in many instances are not profitable to individual farmers. Society's conservation goals can be best attained in these cases by subsidies and cost sharing by the government which causes these practices to be economic for farmers. In terms of national productivity, developmental and conservation goals, these costs should be born by the federal government -- rather than by states, local governments and individual farmers.

The "targeting" of expenditures and resources for soil and water conservation purposes is a program which should be extended and applied more vigorously. Historically, expenditures on soil conservation through technical assistance and cost-sharing practices have been allocated similarly to level areas with no important erosion problem and areas of fragile soils with severe erosion problems. Radical changes should be made in the allocation of these resources. Expenditures and technical assistance should be shifted entirely from areas without an erosion hazard and concentrated in land areas where erosion is severe [Heady, 1952].

Analysis by the ISU-CARD model indicates that future productivity of U.S. agriculture will be great enough and that we have the capacity to conserve our fragile lands while producing food abundantly for domestic use and export [English, Heady, Alt, 1983]. Our estimates indicate that exports can increase by as much as 3 percent per year up to year 2000 through productivity growth from new technology and conversion to crops of some of the 121 million acres of land identified in the U.S.D.A.'s 1977 National Resource Inventory [English, et. al, 1983, U.S.D.A., 1980].

Some very effective conservation practices are profitable to farmers over the long run. An example is conservation tillage. In a study covering all major land resource areas of Iowa, situations , paralleled by other areas of the Cornbelt were studied, conservation tillage was found to be a profitable practice on both owned and rented farms once ownership of appropriate machinery is attained. Hence, in the interests of both farmers and society, cross compliance should be strongly implemented for conservation tillage in relation to all other public programs. Farmers should be required to use conservation tillage practices in areas where it is relevant and profitable if they participate in programs which provide them credit from public facilities, afford them price supports and commodity loans, provide them direct payments for supply control activities and other publicly supported activities. Where farmers still have conventional tillage machinery which will last some time until fully depreciated, publicly acquired conservation tillage equipment should be made available for farmer use.

In general, cross compliance should be used to more readily attain national soil conservation objectives. More study also needs to be given to alternative policy instruments to attain soil conservation objectives. Alternatives include taxes as a penalty for excessive land exploitation, tax rebates and subsidies as an incentive for the use of relevant conservation practices and others. The nation's conservation goals cannot be attained through dependence on market mechanisms alone. Soil erosion often is accompanied by externalities where the farmer

making the decisions does not pay all of the costs of soil erosion or realize all of the return for its control. An example is soil loss which causes excess sedimentation of streams, the sifting of dams and reservoirs or causes excessive erosion of downland farms.

Over the past three decades, there has been a major upheavel in farming technology. This, along with the neglect of our soil resources, has resulted in excessive soil erosion. This national problem can not be corrected in the next five years even if adequate technology, personnel, and financing existed. All three of these have been lacking in the past, and I believe are still in short supply.

Some appraisal like the RCA is required so that the most critical long term problems concerning soil and water resources can be solved. Lacking this, a policy of a little bit here and some over there but not enough where it is most needed, will continue.

Additional information must be sought to answer some of the questions tillage practices carry with them. Although in our studies, we have found that reduced tillage practices are cost effective measures for reducing soil erosion, we have little information as to the yield variability of the various soil conserving practices. We can not address this question. I call for a cooperative effort between the Extension Service, the Agricultural Experiment Station, ASCS,SCS and ARS in setting demonstration plots and other research methods to provide answers and information to our agricultural producers. Demonstration farms need to be selected and promoted. Education needs to take place so as to reduce the

uncertainties of new practice adoption. Public expenditures on new tillage equipment should be made, with this equipment made available to farmers on a variable cost basis. Areas with high erosion rates and/or those with threats on productivity should be targeted, with additional funds made available to these areas. Finally, it seems unfair for taxpayers to provide the means and resources for production loans and still pay for erosion prevention. Thus, cross-compliance between governmental support and erosion control programs should be implemented.

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