Environment and Agriculture: Issues and Approaches

I. Introduction
   A. Challenge
      1. Environmentally sound, socially acceptable and economically feasible agricultural production of food, fiber and fuel.

II. Issues
   A. Agricultural Chemicals
      1. Pesticides
         a. Use and Impact
            1.) Exposure, disposal, off target drift, safety, pest resistance, point and non-point source pollution, non-target organisms (secondary and endangered species), pesticide and fertilizer interaction, microbial degradation, chemigation, application equipment, assessment by commodity, residues/harvest and marketing.

         b. Enforcement
            1.) Federal Insecticide Fungicide and Rodenticide Act
               a.) Pesticide defined
               b.) Basis for enforcement
               c.) Agricultural application of pesticides
                  • Certification and licensing of pesticide applicators

            2.) Limitations
               a.) Personnel
               b.) Resources

         c. Approaches
            1.) Education
               a.) Environmental Economics
                  • Application of environmentally sound production approaches in limiting environmental degradation and increasing applicator safety while decreasing production costs in the use of fossil based pesticides
                  • Integrated Pest Management (IPM)
                  • Minimum tillage agriculture
                  • Pest-resistant varieties

               b.) Agricultural economics
                  • Organic markets
                  • Grade standards
                  • Lowering commodity cosmetics
                  • Increasing mycotoxin research
2. Fertilizers
   a. Use and Impact
      1.) Agricultural non-point source pollution; application rates, timing and location; and quality control
   b. Enforcement
      1.) Amended Federal Clean Water Act
         • Identification of impaired water bodies
         • Establish Total Maximum Daily Loads (TMDLs) for pollutants entering those water bodies
      2.) Florida response: Florida Watershed Restoration Act of 1999
         • Florida Department of Agriculture and Consumer Services (DOACS) the authority to develop Best Management Practices (BMPs) to reduce pollutant loads in target watersheds
            • BMPs defined
            • Office of Agricultural Water Policy
               • Within DOACS
               • Partnering with the Institute of Food and Agricultural Sciences (IFAS) in establishing science based BMPs.
   c. Approaches
      1.) Enforcement based incentives
         • Carrot and stick
      2.) Education
         a.) Environmental economics
            • Slow released fertilizer
            • Nitrogen fixation
            • Proper application
            • Minimum tillage agriculture
         b.) Agricultural economics
            • Grade standards
            • Fossil based fertilizers

III. Conclusion