

Final Report

**Northeast Region
Sustainable Agriculture Research
and Education Program**

**Farmer/Grower Grant
Project FNE96-145**

**Development and Adoption of Computerized
Crop Record Keeping Program**

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Final Report

Summary

The 1996 NE SARE Producer Grant Project (Number FNE96-145) Development and Adoption of Computerized Crop Record Keeping Program successfully met its objectives and goals and far exceeded them in many respects. A computerized crop record keeping program, named CropEc, was completed and is being used by farmers to record crop inputs, yields, and all variable and fixed cost. Self generated summary reports are helping farmers better understand the economics of crop production on their own farm and are providing valuable management decision information. Two other related software databases were developed as spin-offs to the main project effort: MilkFeed Ec - utilizes CropEc cost of production information to determine a farmer's milk income over feed cost and monitors whole farm feed usages and needs; MnureRec - a daily manure application database program summarizes manure applications to different fields and calculates running totals of N, P, and K applied to each field. The software developed through this project is downloadable from the internet.

Project Report

The 1996 SARE Farmer/Grower project "Development and Adoption of Computerized Crop Record Keeping Program" was initiated to help farmers adopt on-farm crop record keeping software for crop management and decision making purposes. Farmers in Chautauqua County, New York were some of the first in New York State to record field by field crop information which was summarized by Cornell Cooperative Extension (CCE) Chautauqua County in a group project. Stephen McChesney was one of the early participants in the Chautauqua Crop Management Project 1984-1993. The completion of that CCE program left a void and an opportunity for farmers desiring detailed crop production and economic information.

It was proposed that the software used by CCE Chautauqua County be rewritten for on-farm use directly by farmers. The purchase and use of computers by farmers had been accelerating to the point where it was becoming feasible to design a project that depended on farmer access to their own computer hardware. Andrew Dufresne, farm management agent, agreed to rewrite the crop record keeping software for on-farm computer use provided assistance could be found to purchase the database programs for a trial group of farm users and other expenses could be covered. The SARE grant made the initiative possible.

Initially, after investigation of a number of popular database programs, the program FileMaker Pro from Claris Corporation was selected for its ease of use, flexibility, and cross-platform design (the only database to run on both MacIntosh and PC computers). Version 1.0 of the database program, which was named CropEc, was designed to collect the basic field crop information desired - field identification, ownership, soils information, soil test results, current crop and seeding information, fertilizer, lime and manure applications, chemical usages, custom work and other inputs along with yield quantity and quality measures.

The database program can easily record data from 999 fields per farm, 99 different farms over a period of 99 years. While CropEc is particularly designed for the Northeast dairy farm, it is flexible enough to be used by producers of most all crops. The crop coding system allows for hundreds of different crops which are summarized by crop code and also into six major crop categories: Hay, Corn, Grains, Vegetables, Fruit, and Forest.

Steve McChesney and Cornell Cooperative Extension recruited farmers to participate in the crop record keeping software trial and development. Participants were provided with a copy of the database programs and the CropEc database files. Participants were assisted in installation of the program onto their computers and given basic instructions in getting started on their own crop record keeping activities.

A users manual was prepared for the program. Farmers, not unlike most computer users, are more apt to read a two page newsletter than a manual. Thus a newsletter, CropEc Notes, was written for users during the 1996 cropping season (see appendix). This provided users with timely instructions and tips as the crop season progressed from spring planting through fall harvest and completion of year end whole farm data input. Six issues have been mailed. The current list of users and others who have expressed an interest in the program exceeds 75 in number.

Version 2.0 of CropEc incorporated whole farm cost for machinery ownership, interest, repairs, fuel, labor, insurance, and building cost relating to crop equipment. These costs were determined for the whole farm business and then allocated back to the crops and fields. During this time it was realized that if a "run-time" version of the database program could be developed, it could be distributed to more farmers at a much reduced cost (savings of \$150 per farm) since they would not need to purchase the database program. Mr. Dufresne began the lengthy process of becoming a licensed FileMaker Pro Solutions developer. That status was achieved and the needed additional software purchased and the first compiled "run-time" versions were created.

Version 3.0 of CropEc - during the past year Claris Corporation upgraded its FileMaker Pro Database to Version 3.0 incorporating full relational database capabilities and other new features. The CropEc 2.0 program was upgraded to utilize the new features which more easily ties together the different databases used in the program. The most recent version of CropEc is 3.1 as of May, 1997.

MilkFeed Ec 2.5

An added project developed along the way was the result of a suggestion by a farmer using CropEc. MilkFeed Ec is molded on the concept used by DHIA in milk production records. Instead of measuring milk production one day a month and estimating monthly total milk production, the user records all feed used during one day each month - milking cows, dry cows, and three groups of youngstock. The program then completes literally hundreds of calculations to report pounds of each feed used per day, month or any other period desired, cost of all feed ingredients per animal per day, per hundred weight of milk, and as percent of milk income. Calculations of Milk Income Over Feed Cost is an excellent way to monitor the relationships between all feed cost and milk price. When the input prices are based upon one's own cost of production as derived through CropEc rather than "market values", the information is even more valuable. Monitoring feed usage quantity also is very useful information in management decision making.

Mnure Rec

A second stand alone program was developed and was named MnureRec. It is closely linked to CropEc but can be used by its self as a separate database program. Today's heightened interest in environmental protection and nutrient management means that farmers must increase their monitoring and control of dairy manure application practices. MnureRec records three simple data bits of information: (1) Where did you spread your manure today? [Pick from your list of fields.] (2) How much did you apply? [loads @ x tons/load or x gal per load], and (3) What is the available Nitrogen, P₂O, and K₂O of the manure [pick from farm's manure analysis or standard values]. MnureRec can then sort and accumulate manure applications by fields and provide instant totals of N, P, and K applied per acre for each field. MnureRec creates a whole new appreciation of the nutrient value of manure applications. It requires only seconds of input time on a daily or weekly basis.

Internet Available World Wide

Potential users of any software would like to view and experience the software before deciding if it will meet their needs. Demonstration versions of CropEc, MnureRec, and MilkFeed Ec have been developed. Most of these Demo versions are the full program except they are password protected limiting records creation. A development that occurred, and was extremely beneficial to this project's efforts, was the availability of space on the Cornell University FTP computer server. Cornell Cooperative Extension Chautauqua County has a web page on the internet:

<http://www.cce.cornell.edu/chautauqua>

Links are provided to CropEc, MnureRec, and MilkFeed Ec pages. Demo versions may be downloaded by anyone who has an internet browser and accesses the web site. Also, the full program versions may be downloaded. This allows for easy updates to the program and users may download updated versions of the CropEc program. By word of mouth, persons from Vermont, Pennsylvania, Virginia, Wisconsin, and Canada have downloaded copies of the programs.

The Future

This SARE grant has provided the seed money to develop an easy to use crop record keeping database program for farmers and it initiated the adoption of on-farm computerized crop record keeping by farmers. It is a beginning, not a completion. Plans are currently underway to hold a training workshop in central New York in late June for farmers and for CCE Farm Management and Crop Extension Educators. The Southwest New York Crop Management Cooperative also uses CropEc with many of the farmers that it serves. We anticipate using CropEc and MnureRec in a just announced EQIP watershed farm nutrient management project grant to work with farmers in the Clymer, New York (Chautauqua County) watershed.

While some developments of the project took longer than anticipated and some corrections had to be made along the way, additional opportunities also came along and resulted in unforeseen benefits and outcomes not dreamed of. We feel that this project has been very successful. We will continue beyond the completion of this phase of these efforts.



CropEc Software - Demo Version

CropEc is a crop recordkeeping database capable of recording inputs (fertilizer, seed, chemicals, etc.), yields, variable and fixed cost and produce summarized reports from 999 fields, 999 different crops from 99 different farms over 99 years. It is based on the author's ten years of gathering and summarizing crop economic information from over 60 farms in Chautauqua County.

The Runtime Demonstration version limits the number of records that can be created and contains most of the features found in the full version. To download the working demo, please start by sending an e-mail message to [Andrew Dufresne](mailto:Andrew.Dufresne@cornell.edu). In the **Subject** of your message please insert the name of this program, CropEc, and in the **Body** of your message enter your name and address. This is the only method I have at this time to keep track of who is using the CropEc program. The message I receive will insure that you have access to support, and answer questions you might have while using the CropEc program.

The Crop Ec Demo file is a self-extracting zip file that should be placed into a separate folder, for example, CropEc. Extract the files by double clicking on the filename CE_Demo. To run the Demo program select CE_Demo Solution and double click.

The development of **CropEc** was assisted by a Grant from the Northeast Region **SARE** (Sustainable Agriculture Research and Education) program.

The full version of the CropEc program can be purchased for \$39.00 from:

Cornell Cooperative Extension Chautauqua County
3542 Turner Road
Jamestown, New York 14701
(716) 664-9502

CropEc. runs on Win95 or Windows 3.x using Win32s



[Download CropEc.](#) now!



MnureRec is an easy to use data base program that tracks dairy **manure** applications.

Loads of manure applied to a field either as solid (tons) or liquid (gallons), are recorded on a daily, weekly, or any routine schedule. Applications of manure to different fields are tracked and analyzed. The daily entries are completed in seconds.

MnureRec's analysis calculates nitrogen, phosphorus, and potassium applied to a specific field. MnureRec also calculates tons, gallons, and N-P-K as a running total for each field. Users of **CropEc** can have a list of field names imported from that program. MnureRec can be purchased for \$19.00 from:

Cornell Cooperative Extension
Chautauqua County
3542 Turner Road
Jamestown, New York 14701
Phone: (716)664-9502
Fax: (716)664-6327

MnureRec runs on Windows 95 or Windows 3.X using WIN32s

[Download MnureRec](#)

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