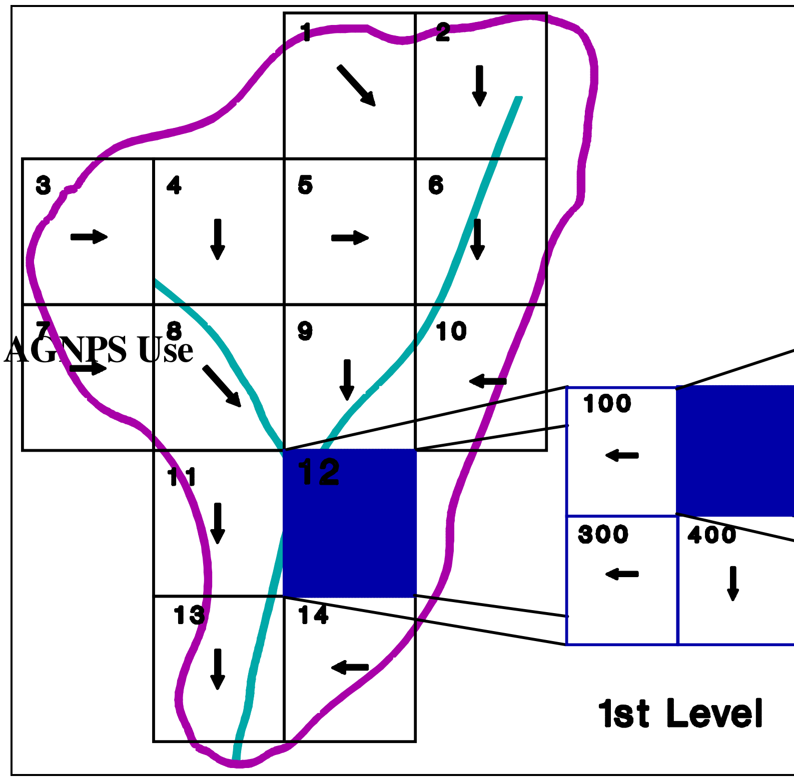
AGNPS Newsletter • A Quarterly Report • July 1992

AGNPS has generation. Both continuous are now coded in C. AGNPS newsletter

entered the C the single event and simulation AGNPS Follow the for new releases.



Notes On AGNPS Use

Some additions have been made to AGNPS version 3.65. The latest version is dated July 1992 and includes the following additions:

1. The Initial Data information can now be printed without having to do a print screen. This option is included in the Print Data menu while in the Edit mode.

2. You can now select a printer connected to a serial port. This option, however, only pertains to Input Data printouts and Tabular Output printouts. As of yet, the Grafix printouts can only be sent to a parallel port. You make the printer port selection under Setup in the Main Bar menu.

3. The Grafix utility in earlier versions was not detecting the correct user defined

fertilizer levels. Also, cells with multiple

feedlots were not being detected correctly. Both of these have now been corrected.

4. The range limits to some of the input parameters have been modified to prevent the user the ability to enter invalid values.

5. The option to print your input data to a file has been added. The Print Input Data menu now works just like the Print Output menu in that you toggle which printouts you want printed and where you want them sent to, either the printer or a file. If you choose File, you will have the option to enter the filename to print to. This file will have a .PRN file extension and will be placed in your Data Path directory.

6. A range check to limit the total number of cells, including divided cells, to 1900 has been added. If you try to divide a cell which would exceed the limit of 1900 cells, an error message is displayed explaining you can NOT divide any more cells.

Users Paragraph

The following summary of AGNPS use in Wisconsin was supplied by Nancy Zolidis. If you have any questions, please call Nancy at 815-874-6600 or FAX 815-874-8426.

A Management Plan for Powers Lake
Kenosha and Walworth Counties, Wisconsin

As part of a planning effort by the Southeastern Wisconsin Regional Planning Commission for the management of Powers Lake, a 459 acre lake located in southeastern Wisconsin, the AGNPS model was used to estimate reductions in nonpoint source pollution and to make recommendations for the protection of wetlands in the drainage area. Storm-generated sediment and phosphorus loadings to Powers Lake via the Powers Lake and the upgradient agricultural lands were simulated by the AGNPS model. Sediment and phosphorus loadings under existing cropping practices and under proposed conservation practices were simulated for the 1.2-inch, 24-hour, and 2.4-inch, 24-hour, two year recurrence interval, storm events; the 3.2-inch, 24-hour, five-year recurrence interval, storm event; and the 3.8-inch, 24-hour, 10-year recurrence interval, storm event. General conservation practices, such as contour strip cropping, were used in the model. Detailed farm conservation plans would be required to refine model inputs for specific conservation practices. For the two-year, five-year, and 10-year recurrence interval storm events, implementation of practices on agricultural lands to control nonpoint sources is expected to achieve between 51 and 65 percent reduction in phosphorus loadings to the lake via the Powers Lake tributary. For the 1.2-inch rainfall event, the reductions in sediment and phosphorus delivered after implementation of conservation practices are expected to be less than 10 percent.

The AGNPS model results were used to develop recommendations for the acquisition of wetlands in the Powers Lake drainage area. Simulated sediment yields were usually lowest for wetland areas, with some of the adjacent agricultual areas exhibiting the highest yields. Wetland areas located adjacent to agricultural lands exhibiting excessive soil erosion rates, as determined by the model, were ranked as very high priority for acquisition whereas wetlands located adjacent to lands not excessively eroding received a lower ranking.

Source: Southeastern Wisconsin Regional Planning Commission Community Assistance Planning Report Number 196, November 1991.

Tami J. Dake
Nancy R. Zolidis

AGNPS Output

We must have satisfied all user questions on outputs? Please make your requests, if any, before the September newsletter!

Current AGNPS Development

Presently, there are three versions of AGNPS. The single event AGNPS (version 3.65), SCS AGNPS, and the continuous simulation AGNPS (ANNAGNPS). In the near future, SCS AGNPS written in C will be distributed as AGNPS (version 4.0). Requests are still welcomed for testers for the Beta version of ANNAGNPS. Contact Basil Meyer at 612-589-3411 if you wish to volunteer.

AGNPS (version 4.0): Written in C, the user will now have a choice of peak discharge equations to be used in model runs. The CREAMS peak discharge equation will remain one of the two choices and will be available in the setup menus by choosing AGNPS under the hydrology options. TR-55 will be the second option and can also be selected in the setup menu. A toggle switch executed by the space bar allows the user to choose. The option of Geomorphic calculations will be available to the user running either AGNPS or TR-55 hydrology for internally determining channel width and depth. The user will also have the option of allowing width and depth to be calculated internally by the model.

Additional changes to AGNPS include: (1) textural and nutrient inputs for sediment from gullies, (2) replacement of a rectangular hydrograph by a segmented triangular hydrograph for sediment routing calculations, (3) user input of: soil nitrogen, soil phosphorus, nitrogen and phosphorus extraction coefficients, pore water nitrogen and phosphorus concentrations, rainfall nitrogen concentration, % nitrogen and phosphorus reductions in feedlot buffer strips, feedlot nitrogen, phosphorus, COD concentrations, and impoundment infiltration rates.

Training

Federal agencies, state agencies, watershed districts, etc. interested in training sessions to train AGNPS users should contact Basil Meyer at 612-589-3411. State SCS personnel should coordinate scheduled training through their regional technical center.

Recommended Reading

Kozloff, K., Taff, S. J., and Wang, W. Microtargeting the Acquisition of Cropping Rights to Reduce Nonpoint Source Water Pollution. Water Resources Research, Vol. 28, No. 3, pp. 623-628, March 1992.

ABSTRACT

Targeting cropland retirement programs to reduce agricultural nonpoint source pollution is accomplished by employing disaggregated information about physical and economic factors that influence the benefits and costs of adopting specific erosion control practices on specific land parcels. The agricultural nonpoint source (AGNPS) model is used in a Minnesota watershed to simulate the relative effectiveness of alternative targeting schemes with respect to budget outlays for annual payments to landowners, reduction in downstream sediment yield and nutrient loss, and reduction in on-site erosion. Cost-effectiveness increased with information on economic factors (the opportunity cost of retiring a parcel of land) as well as on physical factors (contribution of a parcel to downstream sediment yield). The marginal cost-effectiveness of all schemes decreased as the enrolled proportion of watershed land increased.

Acknowledgements

The AGNPS newsletter is a cooperative effort supported by various agencies. These include the USDA Soil Conservation Service (SCS), the Minnesota Pollution Control Agency (MPCA), the Legislative Commission on Minnesota Resources (LCMR), and the Environmental Protection Agency (EPA). The editors of this newsletter are: Vernon Finney and Basil Meyer. The intent of this newsletter is to inform non-AGNPS users of the AGNPS program and to keep current users of AGNPS abreast of current developments and facilitate use of the model.