

USE OF GEOGRAPHIC INFORMATION SYSTEM (GPS) IN NURSERIES

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The use of GIS in nursery operations provides a variety of opportunities.

- All planning activities can be incorporated into an accessible database.
- GIS can be used to create ways for employees to access and analyze data.
- The program can be used for historical record keeping.
- Use of GIS in planning can improve the efficiency of nursery operations.
- GIS can easily be used as a management tool.

Arcview 3.1 is the GIS system currently in use at the Ames Nursery. This program enables the user to accomplish multiple tasks which include:

- Heads up digitizing;
- Importing and creating database files
- Hot-linking to digital photos, text files, and a variety of other file types
- Importing GPS data, as well as data from CAD and DOQ
- Production of maps

Nursery management can benefit significantly from the use of GIS in a number of areas. At Ames, three areas of operations use GIS.

- Administration can use GIS for:
 - Cost accounting
 - Equipment inventory
 - Purchasing, including seed, equipment, chemicals, fertilizers, etc.
 - To assist in management planning

- Nursery research can use GIS for:
 - Tracking outplantings - Nursery history plots
 - Soil testing - Stock inventory - Irrigation
 - Permanent photo plots
- GIS can also be used to track cultural practices such as:
 - Irrigation
 - Chemical application
 - Fertilization
 - Undercutting and wrenching
 - Seeding
 - Top pruning

GIS coverage for Ames Nursery initially included a variety of information.

- Topographic maps (DRG)
- Ortho Quads (DOQ)
- NRCS Soils
- GSB information
- State-wide coverages

As the program has progressed, the nursery has developed (and is developing) site specific coverage, which includes:

- Nursery soils, including pH and sand, silt, clay, and loam content

- Irrigation tracking, including sprinkler systems, drains, valve locations, WDS, A/BGRD
- Building mapping and maintenance for administration, chemical storage, fertilizer storage
- Weather station information
- Road locations and maintenance
- Windbreaks, including shrubs, conifers, and hardwoods
- Past and present stock tracking
- Timber

- Property lines

- Seed collections sites.

In developing the planned use of GIS for other nurseries, the following is recommended:

- Identify uses of GIS for your program.
- Purchase PCs that are capable of running GIS.
- Research software packages for the PCs
- Develop lists of items to be digitized, and utilize existing data or coverages.
- Develop a task list and time line.