
Instructional Facilities, Equipment, Inventory Management, Financing, and Student Safety

Planning Instructional Facilities

The space (classroom and laboratory) and equipment needed to properly conduct a quality educational program in agriculture differs considerably from those needed in other areas of secondary education. To conduct a well organized Agricultural Education program for the various stakeholders to be served, it is essential that the facilities include a classroom, office, conference room, storage rooms, restrooms and the appropriate laboratories such as agriculture mechanics, greenhouse, food science, etc. Also, an attractive entrance should be provided that allows access to classrooms, offices, and restroom facilities. There must be flexibility so that semester courses can be taught and equipment can be utilized when needed. Standard Nine in the Standards and Quality Indicators for Agriculture Program Improvement lists minimum space requirements for the various parts of an agriculture facility and other quality guidelines.

Office and Conference Rooms

The office and conference room is a place for conferences between teachers and students, and groups of students such as FFA committees, parents, and other stakeholders. The teacher's desk, computer, copier, etc., and files are usually kept in the office and conference room. The office and conference room should have an entrance from a corridor so that parents and others may visit an instructor without entering the classroom. Glass panels should be located between the laboratories and classroom when possible. While teachers should never leave classrooms and laboratories unattended during class/instructional time, the glass panels make it possible for the teacher to work in the office and at the same time observe "traffic" in the classroom, and laboratories if applicable. Office space at a minimum should be 100 square feet for one teacher, 130 square feet for two teachers. Offices should be designed for 1.5 to 1 ratio length to width.

Restroom Facilities

Adult classes, young farmer classes, FFA activities, and Young Farmer and Young Farm Wives activities are attended by both males and females. Therefore, it is desirable that conveniently located restroom facilities for both men and women are provided.

Classroom

Classrooms for agriculture are usually equipped with tables and chairs rather than individual desks or tablet chairs. Tables and chairs make arrangements flexible, encourage the use of a variety of reference materials in seeking solutions to practical problems, and are adapted to such activities as plant, seed, soil specimen study, and other laboratory teaching. Tables and chairs should be of sturdy construction with the tables equipped with a tough easily cleaned surface. A Media area in the classroom is ordinarily equipped with shelves and cabinets for books, bulletins, magazines, and notebooks. The classroom should be large enough to accommodate additional chairs for meetings of the FFA, parents, young farmer classes, adult classes, and other

agricultural groups. A minimum of 750 square feet. The classroom should contain a small lab area supporting a sink and counter space for simple chemistry work. In addition, the classroom should contain enough computers for one per student, unless a separate computer lab is available.

Agriculture Mechanics Laboratory

Provisions must be made for storage of unfinished projects, materials, supplies, and tools not kept in the laboratory. A paved area enclosed by a fence, with a portion covered by a roof furnishes economical storage for bulky materials and equipment when not in immediate use. In mild weather, large construction and repair projects may be conducted in both the open and covered areas. An area should also be provided for cleaning equipment outside of the agriculture mechanics laboratory. A minimum of 100 square feet of lab space per student is needed to adequately supply the needs of agriculture mechanic students. In addition, resource storage of a minimum of 200 square feet and tool and supply storage of 100 square feet is optimal. Large areas of unobstructed floor space (minimum 40 feet wide), high ceilings (minimum of 12 feet, and large external doors (minimum 10x10 feet) are essential to provide students with significant learning experiences in maintenance, construction, and repair of agricultural machinery and equipment. The growing use of power tools, electrical equipment and computers makes it necessary to provide for all present electrical requirements and also for future expansion in the use of electricity. Storage should be provided so delivery trucks can unload wood, metal and other materials easily. Heavy materials should be stored as close to the delivery area as possible. A sink large enough for six or more students to wash at a time should be located in the agriculture mechanics laboratory.

Greenhouse

The greenhouse should be located in close proximity to the classroom office area but in an orientation for maximum sunlight. The greenhouse should be a minimum of 1800 square feet and if possible divided into two temperature zones. In addition, there should be 600 square feet of head house for potting activities.

Other Laboratories

Other laboratories such as food science, aquaculture and biotechnology may require specialized equipment and space to accommodate individual stations containing science laboratory sinks and tables. These laboratories require additional storage and classroom floor space that needs to be tailored to the specific class. A cabinet equipped with a sink and running water is usually provided in the classroom for laboratory work such as food science and other laboratory activities.

In addition, Specific programs in agriscience, horticulture, forestry and natural resources and specialty areas (aquaculture, small animal technology, bio-technology, wildlife management, floral design, food technology, etc.) may in some instances need facilities specifically designed to accommodate the curriculum. For example, Forestry/Natural Resources programs are recommended to have access to outdoor land laboratories. These labs should be at least five acres

in size and would be more desirable in the 10 to 20 acre range. Furthermore, school farms may require several acres and additional equipment and facilities.

In conclusion, whether you are building new facilities or remodeling older facilities, the construction decisions should be driven by the curriculum that will be taught currently, and by curriculum that may be taught in the future. The decisions about construction should be made with the following stakeholders involvement in the construction process. You should involve, your administration, your local advisory council, your state staff and work closely with your local architect.

STEPS FOR TEACHER(S) TO FOLLOW IN PLANNING FACILITIES

The most effective facility will be one in which all specific program area teachers within the school, administrators, advisory committee members, and program area staff in the Department of Education and architects has participated in planning. The best results will be obtained if a logical sequence is followed.

- Step 1 -Develop or revise, if needed, the philosophy for the local program area department based on current and projected needs of the students, community, curricula, and trends in education and society.
- Step 2 -Determine the present and long-range educational program based on the philosophy of the local program.
- Step 3 -Review a variety of resources such as equipment catalogs, references on space, equipment and storage guides, and current professional journals.
- Step 4 -Evaluate the present facility to determine what to include or avoid in a new facility.
- Step 5 -Visit other schools in various communities to discuss with other program area teachers ideas for space needed, equipment, layout, etc. Remember, copying a plan from one school may not provide an appropriate facility for another community.
- Step 6 -Develop basic educational specifications that will be required to meet programmatic needs of planned career majors/career pathways.
- Step 7 -Interpret and discuss educational specifications that will be required to meet program needs.
- Step 8 -Evaluate the preliminary architectural drawings using the criteria and educational specifications as guidelines. Provide rationale and description of suggestions for any needed changes to the designated person.

With these steps in mind, you should be able to plan and implement a successful remodel or construction of a new facility.

Financing Equipment and Facilities

A successful agriculture mechanics lab requires financing to replace and repair equipment and to make alterations as needed to support changes in curriculum. Your local advisory group is a

great support team that can validate your needs to administration and sometimes even fund equipment purchases. Be sure and discuss equipment and facility needs with them at one of your required meetings.

The local school district will normally present you with a budget for supplies and equipment purchases. In order to utilize these funds you will need to work with your administrator or financial agent to request funds. Usually, this will involve completing a local requisition for the purchase of the item and then after approval you will use this requisition to purchase the item. Always check with the vendor and make sure that they will accept the schools purchase order and make sure you keep a copy of your receipt for your records. Remember, that you must keep track of your expense and not go over your budget.

In addition, the Department of Elementary and Secondary Education does have an Enhancement Grant that can purchase equipment and fund renovations. These grants follow specific guidelines that you will need to research, but can provide funding at 50% to 75% of the cost of an item. For more information contact the Department of Elementary and Secondary Education Website, or call your state supervisor.

Inventory Management

Due to accountability for the large and varied number of equipment items required to provide a quality agriculture program, an up-to-date inventory is a necessity. In addition, an inventory is a requirement when receiving state or federal funds.

One of the first and highest priorities of an agriculture instructor should be to complete an inventory of all items assigned to the agriculture program. This is especially true if the instructor is new to the school. Items which were identified on previous inventories should be accounted for or noted as missing by the new instructor. In subsequent years an annual up date is needed.

Reasons for completing an annual inventory include:

1. Noting the condition of the equipment;
2. Maintaining recent copyrights on textbooks;
3. Identifying equipment for replacement or disposition; and
4. Addition of new items.
5. Audit of Federal and State Funds

The inventory management and control requirements are as follows: (DESE, 2012)

1. Inventory must be current and available for review and audit. The following information must be included in the recipient's inventory records:
 - A description of the equipment.
 - A serial number, model number, or other identification number.
 - The funding source and percentage under which the equipment was acquired.
 - The acquisition date and unit cost.
 - The present location, use, condition of the equipment, and date the

information was reported.

- All pertinent information on the final transfer, replacement, or disposition of the equipment (including the date of disposal and sale price of the equipment).
2. Inventory must be updated as equipment items are purged or new purchases are made.
 3. Equipment items purchased with Federal funds are to be identified and physically marked as such.
 4. Adequate safeguards must be in place related to the loss, damage, or theft of the equipment. Any loss, damage, or theft should be investigated and fully documented.
 5. Adequate maintenance procedures should be implemented to keep the equipment in good condition.
 6. A physical inventory of equipment items must be taken and the results reconciled with the inventory records at least once every two years.

For more information on inventory control guidelines and the disposition of equipment, refer to the Office of College and Career Readiness Guidelines (revised, 2012) at:

<http://www.dese.mo.gov/divcareered/documents/ccr-equipment-guidelines-0712.pdf>

Student Safety

The laboratory setting is one of student action and involvement. Students will interact with many types of equipment and with each other as they accomplish their lessons. In addition, students may not be familiar with the equipment and environment that is a part of a modern agriculture lab. Students should have a thorough understanding of their laboratory environment and the accompanying safety equipment. The instructor should demonstrate all of the equipment and insist that every student complete a safety exam at a proficient level and be able to demonstrate the proper use of every piece of equipment that they will be asked to manipulate. These safety exams should be kept of file by the instructor, till the student graduates. In addition, if there is an accident in the lab, the incident should be documented in writing and kept for a period of five years.

The laboratory should be kept clean, neat and orderly. Safety zones and lanes should be maintained around all equipment and allow for the safe operation of equipment and the safe flow of students and materials in the lab. Students should always dress appropriately for the potential hazards of working in the lab, and federal law mandates that safety glasses be worn by all students and visitors to the lab area.

A quality instructor will maintain a routine inspection of their lab and make sure that all equipment is fully functional and safe for students to operate. Many check lists can be located on the worldwide web that will help a teacher to complete a routine check of potential hazards in the laboratory.