

# Equipment List

## Agricultural Business Management-Agriscience Environmental Service Systems Option G CIP #01.0100.00

The Agriscience classroom should reflect the environment, equipment, supplies and instructional materials students would expect to find in industry.

### SAE & FFA Integrated Skills

Options A – G  
CIP No. 01.0100

#### **Equipment:**

30' x 50' Classroom  
Computers (one per two students)  
FFA Supervised Agricultural Experience (SAE) equipment  
Foldable Table  
National FFA Career Development Event (CDE) equipment  
Printers (one per five computers)  
Stackable Chairs  
Whiteboard

#### **Supplies:**

Calculators (graphing/scientific)

#### **Instructional Materials:**

Bulletin board  
Business newspapers  
Daily newspapers  
Decisions and Dollars Manual  
Depreciation forms  
Employee evaluation forms  
FFA Manual  
FFA Student Handbook  
Financial management software programs  
I-9 Forms  
Insurance Information  
Inventory forms  
Job search records  
On-line computer service  
Professional job postings  
Project Food, Land & People

SAE Program Record and Planning Book  
Sales display board  
Sample appointment and schedule books  
Sample business plan  
Sample business plan services contract  
Sample buyer-seller contracts  
Sample cover letters  
Sample income tax forms (individual and business)  
Sample job applications  
Sample letter of acceptance  
Sample letter of rejection  
Sample loan applications  
Sample resumes  
Sample thank you letters  
Spreadsheet software programs  
USDA Commodity Reports  
USDA Governmental Programs Information  
W-4 forms  
Wall Street Journal  
Yellow pages

**Applied Biological Systems (ABS) Agriculture**  
**Laboratory-Based Integrated Science I**  
CIP No. 01.0101.10

**Facility/Equipment**

Greenhouse – complete with environmental controls and timers  
Benches/Tables for greenhouse  
Bottom heat for propagating.  
Hydroponics systems  
Aquaculture system  
Wheelbarrows  
Fiberglass concrete forms – for benches, etc.  
Hand tools – hammers, screwdrivers, socket set, wrenches, tape measurers  
Drills – cordless is always good  
Skill saw  
Concrete/Masonry tools – trowel, float, edger, jointer  
Drill press  
Band saw  
Drill bits, hole saws  
Aquaculture water meter (colorimeter kit is good too)  
Handheld pH meters  
Benchtop pH meter for Biotech/Tissue Culture  
Tissue culture grow rack with lights  
Laminar Flow Hood (tissue culture)  
Tissue Culture chambers  
Autoclave  
Incubator  
Lawn mower  
Grinders  
Tiller  
Fertilizer injectors  
EC (electroconductivity) meter  
Pipe threader  
Pipe cutter – large and small  
Propane torches – soldering  
Pipe vises (and tables)  
Metal tables  
Welders – not much help here though  
Collapsible saw horses  
Lab glassware – beakers, graduated cylinders, bottles  
Hot/stir plates  
Computers  
Drafting boards and equipment (T squares, triangles, templates, etc.)  
Books – SRU's from U of A, Plants for

## **Supplies**

Tissue culture supplies – agar, sucrose, nutrients

Ethanol

Pvc pipe

Drip pipe

Copper pipe

Solder

Flux

Block/brick

Soil – mulch, perlite, vermiculite

Plant containers – 1 gallon, 5 gallon, liners

Concrete, cement, sand, lime

Stir bars (plastic coated magnets for stir plates)

Seeds – garden, greenhouse and hydroponics

Hydroponic nutrients

Fish

Fish food

## **Instructional Materials**

SRU's from University of Arizona

Plants for Dry Climates (text)

FFA Handbooks & Manuals.

The following tools and equipment have been assembled to provide guidance to satisfy the **core curriculum** in Agricultural Mechanics Instruction (Options A-G).

## **CONSTRUCTION/MAINTENANCE**

### **Wood Construction—Machinery**

Drill Press 15in.  
Saw, Radial Arm 14in. blade  
Saw, Table 10in blade

### **Wood Construction—Portable Electric Power Tools**

Cleaner, Vacuum 2HP  
Drill, Electric (HI-LO gear) 3/8"  
Drill, Electric (Reversible) 3/8"  
Router 1 1/2 HP

### **Wood Construction—Hand Tools**

Awl, Scratch 6"  
Bar, Nail 10"  
Bar, Pry 10"  
Bar, Ripping 24"  
Bevel, Sliding 8"  
Bit, Auger No. 4 – 16  
Bit, Expansive 7/8" – 3"  
Bit, Wood 1/4 – 1"  
Brace, Box Ratchet 10"  
Chalk line 50ft  
Chisel, Wood 1/4 - 1 1/2"  
Clamp, Fixture 3/4" pipe  
Clamp, Hand Screw 12"  
Clamp, Hand Screw 10"  
Clamp, Hand Screw 8"  
Clamp, Hand Screw 6"  
Countersink 1/2"  
Divider, Wing 7"  
Drill, Screw setting No. 6-12  
Hammer, Nail (curved claw) 13oz  
Hammer, Nail (curved claw) 16oz  
Hammer, Nail (ripping claw) 16oz  
Knife, Putty 1 1/4"  
Knife, Utility 6"  
Level, Carpenter's 24"  
Mallet 16oz  
Nail Set 4"  
Plane, Block 6"

Plane, Jack 14"  
Plane, Smoothing 9"  
Pliers, Fencing 10 ½"  
Rasp (half round) 14"  
Rasp (round) 14"  
Rasp (square) 12"  
Rule, Tape 5M/16ft  
Rule, Tape 30M/100ft  
Saw, Hand 26" x 11pt  
Saw, Hand 26" x 9pt  
Saw, Hand 26" x 5 ½ pt  
Screwdriver, Clutch 3"  
Screwdriver, Clutch 4"  
Screwdriver, Phillips 3"  
Screwdriver, Phillips 4"  
Screwdriver, Ratchet 25"  
Screwdriver, Regular 4"  
Screwdriver, Regular 6"  
Screwdriver, Regular 8"  
Square, Combination 12"  
Square, Framing 16" x 24"  
Square, Framing Metric

### **Wood Construction—Miscellaneous**

Bench, 2 station 28 x 64"  
Brush, Bench 8"  
Brush, Paint 2"  
Brush, Paint 3"  
Sharpening Stone 8 x 2 x 1"  
Staple Gun ½"  
Vise, Woodworking 4" x 10"

### **Metal Construction—Machinery**

Anvil 140#  
Bender, Iron  
Brake, Metal 48"  
Compressor, Air 7.5 CFM  
Drill Press 20"  
Drill Press Vise No. 3  
Forge, Gas Fired 400,000 BTU  
Grinder, Bench 6" x ¾" x ½"  
Grinder, Floor Stand 12" x 2" x 1 ¼"  
Saw, Abrasive cut off 14" blade  
Saw, metal Cutting ½" x .024" blade  
Shear, metal 3/16"  
Sheer, metal ½"  
Welder, Electric Arc 225 amp

Welder, Electric Arc 250-300 amp  
Welder, MIG 150-200amp  
Welder, Oxy-acetylene Equipment

### **Metal Construction—Portable Power Tools**

Drill, Electric ½"  
Furnace, Soldering 3 burner  
Grinder, Right Angle 7"  
Grinder, Straight 5"  
Impact Tool, Electric 5"  
Nibbler 16ga  
Saw, Band ½" blade

### **Metal Construction—Hand Tools**

#### ***Cold Metal***

Caliper, Vernier 5" cap (English meas.)  
Caliper, Vernier 5" cap (metric meas.)  
Chisel, Cold ¾"  
Cutter, Bolt 30"  
Dresser, Grinder 12"  
Dresser, Grinder 6"  
Drill, Twist Fractional (straight shank)  
Drill, Twist Number (straight shank)  
Drill, Twist Letter (straight shank)  
Drill, Twist Fractional (taper shank)  
File, Hand (half round) 14"  
File, Hand (flat) 12"  
File, Hand (mill) 12"  
File, Hand (half round) 10"  
File, Hand (mill) 10"

### **Metal Construction—Hand Tools**

#### ***Cold Metal***

File, Hand (round) 12"  
File, Hand (round) 10"  
File, Hand (square) 12"  
File, Hand (square) 10"  
File, Card N  
File, Hand (3-square) 8"  
File, Hand (taper) 6"  
Gauge, Drill point 6"  
Gauge, Drill size fractional  
Hammer, Ball Pein 3/0  
Hammer, Ball Pein 1  
Marking Stamps (figure) 3/16"  
Marking Stamps (letter) 3/16"  
Oiler, Bench 1/3 pint

Saw, Hack 10-12"  
Saw, Hole  $\frac{3}{4}$ " – 2  $\frac{1}{2}$ "  
Screwdriver 4"  
Screwdriver 6"  
Screw plate  $\frac{1}{4}$ " –  $\frac{3}{4}$ " NC  
Screw plate  $\frac{1}{4}$ " –  $\frac{1}{2}$ " NC  
Screw plate machine screw  
Square, Combination 12"  
Square, Combination (blade square head) 12"  
Vise, Machinist's 4"  
Wrench, Adjustable 8"  
Wrench, Adjustable 10"

### **Metal Construction—Hand Tools**

#### ***Plumbing***

Bender, Tubing  $\frac{1}{4}$ " –  $\frac{5}{8}$ "  
Brace, Hand 10"  
Cutter, Pipe  $\frac{1}{8}$ " – 2"  
Cutter, Tubing  $\frac{3}{16}$ " –  $\frac{5}{8}$ "  
Cutter, Plastic pipe  $\frac{1}{4}$ " – 2  $\frac{5}{8}$ "  
Die, Pipe threading  $\frac{3}{8}$ " –  $\frac{3}{4}$ "  
Die, Pipe Threading  $\frac{1}{2}$ " – 2"  
Flaring Tool  $\frac{3}{16}$ " –  $\frac{5}{8}$ "  
Handle, Tap  $\frac{1}{4}$ " – 1"  
Oiler, Bench  $\frac{1}{3}$  pint  
Reamer, Pipe  $\frac{1}{8}$ " – 1"  
Reamer, Pipe  $\frac{1}{4}$ " – 2"  
Saw, Hack 12"  
Swaging Tool  $\frac{1}{4}$ " –  $\frac{5}{8}$ " OD  
Tap, Pipe 1-8"  $\frac{3}{4}$ "  
Torch, Propane  
Vise, Pipe  $\frac{1}{8}$ " – 2  $\frac{1}{2}$ "  
Wrench, Pipe 8"  
Wrench, Pipe 10"  
Wrench, Pipe 12"  
Wrench, Pipe 14"  
Wrench, Pipe 18"  
Wrench, Pipe 24"

#### ***Sheet Metal***

Awl, Scratch 6"  
Copper, Soldering 3 lb  
Copper, Soldering 2 lb  
Divider, Wing 12"  
Gauge, metal  
Groover, Hand No. 4  
Hammer, Tinnerns 12 oz

Mallet, Tinnets 20 oz  
Pliers, Forming 8"  
Riveter, Pop 1/8" – 3/16"  
Rule, Steel 1" x 36"  
Snips, Tinnets (left cut) 10"  
Snips, Tinnets (right cut) 10"  
Snips, Tinnets (straight combo) 10"  
Square, Combination 12"

### **Metal Construction—Hand Tools**

#### ***Welding Hot Metal***

Chipping Tool  
Clamp 9"  
Clamp, C 4"  
Clamp, C 6"  
Clamp, C 8"  
Clamp, C 11"  
Cleaner, Tip  
Glove, Leather Large  
Hammer (ball pein) 24oz  
Hammer (ball pein) 32oz  
Hammer (blacksmith) 32oz  
Hammer 8 lb  
Lighter  
Pliers 10"

### **Metal Construction—Hand Tools**

#### ***Welding Hot Metal***

Saw, Hack 10" – 12"  
Tongs 3/8" x 20"  
Tongs 24"  
Vise 5"

### **Concrete & Masonry—Machinery**

Mixer 4 cu ft  
Mortar Box 9.2 cu ft  
Wheelbarrow 5.5 cu ft

### **Concrete & Masonry— Hand Tools**

Corner Box  
Drill, Masonry  
Edger 6" x 2 1/2" x 1/4"  
Edger 6" x 3 1/2" x 3/8"  
Edger 6" x 4" x 1/2"  
Float, Bull 42" x 8"  
Float, Magnesium 16" x 3 1/2"  
Float, Sponge 8" x 4"

Float, Wood 18" x 3 ½"  
Float, Wood 12" x 4 ½"  
Groover 6" x 2" x 1/8"  
Groover 5 ½" x 3" x 3/8"  
Hammer, Electric ½"  
Hoe, Mortar 10" width  
Hose, Water 5/8" x 50'  
Jointer, Brick ½" 5/8"  
Level, Masons 48"  
Line, Masons 250'  
Pads, Knee  
Rubbing Brick 6" x 3"  
Scale, Weight 100lb  
Sieve, Aggregate  
Shovel (square point) 10"  
Shovel (round point) 9"  
Tamper, Jitterbug 36" x 6 ½"  
Trowel, Brick 11 ½" x 5"  
Trowel, Finishing 12" x 4"  
Trowel, Finishing 16" x 4"  
Trowel, Margin 5" x 2"  
Trowel, Pointed 11" x 5 ½"  
Trowel, Pointing 4 ½"

### **Concrete & Masonry—Miscellaneous**

Bucket 5 gal  
Can, Oil 1qt

### **Electrical—Hand Tools**

Belt, Cotton Web 2 ¼" wide  
Bender ½"  
Bender ¾"  
Bit, Auger 5/8" x 18"  
Bit, Auger ¾" x 18"  
Cable Ripper 3 ¾"  
GFCI, Portable 15 amp  
Hammer, Nail 16oz  
Knife 1 blade  
Knockout ½ - 1 ¼  
Meter, AC Volts 4 ½  
Meter, AC Amp 4 ½  
Pliers, Diagonal 8"  
Pliers, Long Nose 7"  
Pliers, Pump 10"  
Pliers, Side Cutting 9"  
Screwdriver 3/16" x 4"  
Screwdriver 3/16" x 6"

Screwdriver #2 x 4"  
Soldering Gun 325 watt  
Terminal  
Tester 0-300amp & 0-600 volt  
Tool Pouch 5"  
Wire Stripper 5"

## **POWER AND MACHINERY**

### **Power Tools & Equipment**

Charger, Battery 80amp  
Cleaner, Parts 45gal  
Cleaner, Washer 4 GPH  
Creeper, Mechanics  
Hoist, Wheel 2 ton  
Jack, Axle 4 ton  
Jack, Service 1 ½ ton  
Paint Spray 1qt  
Press, Hydraulic 25ton  
Stands, Safety 2 ton

### **Portable Tester Equipment**

Analyzer, Exhaust Gas  
Extension Cord 50'  
Hydrometer (battery testing)  
Hydrometer (radiator testing)  
Lamp, Trouble 25'  
Tachometer 50-4000rpm  
Tester, Battery  
Tester, Engine  
Tester, Generator  
Tester, Ignition  
Tester Pressure Cap  
Tester, RPM

### **Hand Tools**

Air Hose ¼" 25"  
Bar, Drag Link 16"  
Bar, Pry ¾" x 24"  
Bar, Pry ¾" x 18"  
Battery Carrier 17"  
Battery Cleaner  
Battery Filler 1qt  
Brush, Parts 12"  
Bushing Driver

Caliper, Inside 8"  
Caliper, Outside 8"  
Caliper, Micrometer 0-1"  
Caliper, Micrometer 1-2"  
Caliper, Micrometer 2-3"  
Caliper, Micrometer 3-4"  
Caliper, Micrometer 4-5"  
Caliper 6"  
Can Fuel 5gal  
Can, Spout 1 & 5 qt  
Can, Waste 10 gal  
Chain, Binder 3/8"  
Chain, Log 3/8" x 14'  
Chisel, Cold and Punch 3/4" x 12"  
Extractor, Screw No 1-6  
Gauge, Dial 1" Range  
Gauge, Feeler .004-.027  
Gauge, Feeler .04mm-.89mm  
Gauge, Point  
Gauge, Small Hole 1/8-1/2  
Gauge, Telescoping 1/2-6"  
Grease Gun 1lb  
Hammer (ball pein) 16oz'  
Hammer (ball pein) 24oz  
Hammer (plastic faced) 16oz  
Hose, Water 5/8" x 50'  
Oil Measure 2qt  
Pliers 10" (combo slip joint)  
Pliers 10" (water pump type)  
Pliers 16" (water pump type)  
Pliers 7 1/2" (diagonal cutter)  
Pliers 8" (end cutting nippers)  
Pliers 8" (snap ring)  
Pliers 8" (lock ring)  
Pliers 6" (convertible)  
Pliers 8" (hose clamp)  
Pliers 10" (lever wrench)  
Pliers 7" (parrot nose)  
Puller (universal joint)  
Puller 13 ton  
Punch, Gasket 1/4-5/8"  
Punch 1/8-1/4"  
Retrieving Tool 26'  
Screwdriver 12" (standard blade)  
Screwdriver 10" (standard blade)  
Screwdriver 8" (standard blade)  
Screwdriver 6" (standard blade)

Screwdriver 4" (standard blade)  
Screwdriver #3 (Phillips head)  
Screwdriver #2 (Phillips head)  
Screwdriver #1 (Phillips head)  
Screwdriver 3/16 (clutch head)  
Screwdriver 1/4 (clutch head)  
Screwdriver 5/16 (clutch head)  
Wrench, Adjustable 8"  
Wrench, Adjustable 10"  
Wrench, Adjustable 12"  
Wrench, Adjustable 18"  
Wrench, Allen .028-3/8"  
Wrench, Flat 1/4"-1 5/16"  
Wrench, Flat 3/8" -1 1/4"  
Wrench, Ignition 7/32 - 7/16  
Wrench, Oil Filter  
Wrench, Socket 3/4" Drive (square)  
Wrench, Socket 1/2" Drive (square)  
Wrench, Socket 3/8" Drive (square)  
Wrench, Socket 1/2 Drive (deep socket)  
Wrench, Socket 3/8" Drive (deep socket)  
Wrench, Socket 3/8" Drive (spark plug)  
Wrench, Stud Remover 1/4-3/4"  
Wrench, Tappet 7/16-11/16  
Wrench, Torque 3/8"  
Wrench, Torque 1/2"

### **Small Engine Equipment Tools**

Cutter, Valve Seat  
Engine, 4 cycle (1 cylinder-3HP)  
Hone, Cylinder 1 1/2 - 3 1/2  
Hone, Cylinder 2.0" - 2.6"  
Tester, Coil  
Tools, Basic  
Tools, Special  
Tools, Special (starter clutch)  
Wrench, Torque 3/8"

### **Soil & Water Management**

Arrows (pins) 3/16" x 14"  
Auger, Soil 2"  
Level, Farm 20 Power  
Level, Hand 2 1/2 Power  
Level, Universal 26 Power  
Pole, Range 8 1/2"  
Sampler, Soil 1" x 21"

## **Drafting**

Drawing Board 16" x 21"

Scale 12"

Tee Square 21"

Triangle 8" (30 – 60 degree)

Triangle 8" (45 – 90 degree)

## **Safety & First Aid**

Air Nozzle 5"

Brow Bands (Adjustable)

Cabinet, Safety Storage 65" x 43" 18"

Cape, Welders med.

Ear inserts (universal)

Face Shield 6" x 12"

Fire Blanket Standard

Fire Extinguisher 15lb

Fire Extinguisher 10 lb

First Aid Kit 25 student

Glasses, Safety 46-48 mm

Goggles Adjustable (gas welding)

Goggles Adjustable (clear protective)

Helmet Adjustable (head protection—hard hat)

Helmet Adjustable (arc welding)

Respirator, Dust (disposable)

Respirator, Paint Spray

Tape, Anti-slip 2" x 48ft

Tape, Safety Zone 3" x 36 yd

Tape, Warning 1 ½ x 18 yd

Wearing Apparel (100 % cotton twill)

**Laboratory-Based Integrated Science II**  
**Environmental Service Systems - Option G**  
CIP No: 01.0100.00

The Environmental Service Systems Agricultural Business & Management—Agriscience classroom should reflect the environment, equipment, supplies and instructional materials students would expect to find in industry.

**Equipment:**

Aquatic net  
Barometer  
Biltmore stick  
Binoculars  
Bottom dredges  
CBL Probes  
Fish measuring board  
Gas chromatographs  
Global Positioning System  
Mammal traps  
Microscopes  
Microscope slides  
pH meter  
Plankton net  
Prism  
Radio telemetry unit  
Rain gauge  
Refractometer  
Secchi disk  
Seines  
Sieves  
Sling psychrometer  
Snake/reptile stick  
Spectrometers  
Thermometers  
Tree increment borer  
Water meter for physical/chemical parameters  
Water test kits  
Wind speed meter

**Supplies:**

Animal tags/bands  
Calculators (graphing/scientific)  
Coal samples  
Diameter tape  
Soil monolith  
Soil samples  
Water bottle samplers  
Water samples  
Wood samples

**Instructional Materials:**

Clean Air Act—*Reference Material*  
Comprehensive Environmental Response, Compensation, and Liability Act—*Reference Material*  
Groundwater flow model  
National Environmental Protection Act—*Reference Material*  
Nuclear Waste Policy Act—*Reference Material*  
Occupational Safety and Health Administration—*Reference Material*  
Resource Conservation and Recovery Act—*Reference Material*  
Safe Drinking Water Act—*Reference Material*  
Superfund Amendment Reauthorization Act—*Reference Material*