



How to Select, Use and Maintain Landscape and Garden Equipment ACLP Tools and Safety Workshop

I. Equipment Basics

- Always buy the best that you can afford
- Don't buy what you do not need
 - * Rent

A. Selection – What are your needs?

1. Purpose
2. Match tool to the size of the job
3. Consider storage space
4. Consult local experts
5. Shop around
6. What to look for?
 - a. Quality workmanship
 - b. Quality materials
 - c. Weight of tool
 - d. 'Promotional' or 'professional'

B. Use

1. Tools should be strong enough to accomplish the job for which they are designed.
2. Most tools break because they are used improperly.
3. Be aware of the tool's limits and use the tool within those limits.
4. **Safety** always comes first.

C. Maintenance

1. Develop good habits. Repetition.
2. Cleaning and lubricating make your tools last longer and work better.
3. Sharpening your tools makes your work easier.
4. Storing your tools in one specific area lets you find them whenever you need them.

D. Troubleshooting – Repairs and how to avoid them.

1. Remove and control rust.
2. Sharpen nicked or dulled cutting edges
3. Renew roughened and aged handles
4. Repair cracked handles

E. Storage

1. Select a site convenient to or accessible to your work.
2. Site should be indoors, out of sun, rain and snow.
3. Tools should be organized. Best to hang on the wall.
4. Organize tools by category.



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II. Digging, Raking and Weeding

- A. Trowels – used to remove weeds in turf or general garden work, i.e. planting seedlings, bulbs.
- B. Shovels, spades and forks – Used for digging, turning over soil, scooping materials such as sawdust, granite, topsoil, and mulch. Type of soil will also impact tool selection.
 1. Shovels – used for digging and lifting
 2. Spades -- cutting and digging in a heavy soil
 3. Garden fork – thick, heavy tines, used to turn over soil.
 4. Pitchfork – lighter, longer tines, used to move light, loose materials.
 5. Handles
 - a. Long and straight – dig deeper holes without much bending; can throw soil farther, when necessary.
 - b. Short, with a D-shape grip – gives more control and good for delicate work. Good for working around tree roots, dividing perennials, digging trenches, working in close quarters
 - c. Handles made from ash or hickory are strong and lightweight. Cheaper handles may be made from Douglas fir, which is not as strong or resilient.
 - d. Handles made of rolled (tubular) steel are heavy, expensive, and designed for use in nurseries.
- C. Picks and Mattocks – designed to work in ground that is too hard, rocky, or root filled for a shovel, spade or fork.
 1. Picks
 - a. Loosen soil that is very hard and very rocky.
 - b. Pointed end is used for initial breaking of hard ground.
 - c. Narrow end (1-inch wide) with chisel-like tip is for scraping an area or working softer ground.
 2. Mattocks
 - a. Loosen soil that is hard but not rock-hard
 - b. Loosen soil that is laced with roots.
 - c. Loosen soil that is full of stumps.
 - d. Two sizes available:
 - 1) Lightweight garden mattock – 2 ½ lbs.
 - 2) Heavy-duty mattock – 5 lbs.
 - e. One side of mattock blade resembles a small but thick axe head and is used for cutting large roots.
 - f. The other side of mattock has a flat, hoe like head for moving soil and cutting small or medium-size roots.
 - g. Mattocks are also used for digging narrow ditches.
- D. Posthole diggers
 - When selecting a digger, consider type of ground, depth of hole, how often you will use the digger, and the extent of your strength.
- E. Rakes – two types: steel garden rake and lawn rake.
 1. Garden rakes



- a. Flathead – used to break up soil clods, turn over and level soil, thin vegetables. Good for fine cultivating and finishing a seedbed. Head is relatively weak and can break if used on heavy material.
 - b. Bowhead rake – named after two tangs, which resemble a drawn bow. More spring action than flathead rake. Stronger and sometimes heavier than the flathead rake. Use for leveling soil, raking heavy material or spacing seeds in a prepared seedbed.
2. Long-handled cultivator – Breaks up clods and stirs soil more deeply than a rake. Lightweight cultivator can be used for raking leaves in flowerbeds.
 3. Potato Fork – used for harvesting potatoes.
 4. Leveling rake – break up large, soft clods in a newly spaded garden. Used to spread and level decomposed granite.
 5. Lawn rakes
 - a. Fanlike, dull, springy teeth
 - b. Designed to glide over grass to remove clipping or leaves without catching in the sod.
 - c. Commonly made of steel, bamboo, or polypropylene.
 - d. Thatching rake – Specialty tool for clearing lawns of thatch.

F. Hoes

1. Used for cultivation (chopping, loosening and moving light soil)
2. Weeding (cutting off weeds at or just below soil surface)
3. Garden hoe – used primarily for cultivation
4. Scuffle hoe – cutting off small weeds

G. Hand cultivators and Weeders

1. Hand cultivators are used to aerate soil or to weed close in to plants.
2. Weeders are made to dig out weeds without removing chunks of turf.

H. Weed and Brush cutters – cut weeds along roadsides, in areas used for waste, and in unused fields. Basic tools include the sickle, scythe, grass whip, swing blade and brush cutter.

I. Wheelbarrows

III. Pruning

A. Hand pruners or Secateurs – Used to cut branches up to ¾-inch in diameter.

1. Bypass hand pruners – generally superior to anvil type pruner.
2. Anvil blade hand pruners – Cannot get as close to larger branch to execute a clean cut and may crush the end of a twig.
3. Bypass pruners are only beveled on the outside of the blade. Anvil pruners may have two beveled edges.
4. Bevel – edge of a blade that is at an angle to the rest of the blade.

B. Loppers – Used to cut a branch ¾ inch thick or more.

1. Usually are made in the bypass style.
2. Good cutting heads should be made of forged steel.



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- C. Pruning Saws – Can handle cutting branches from 2” to 25” thick. Some saws cut only on the pull. Others may cut in both directions.
- D. Hedge Shears – Used to shape bushes and hedges.
 - 1. Hand models – cut branches up to ½ inch thick.
 - 2. Power models – cut branches up to ¼ inch thick.
- E. Grafting/budding knives – Used for propagation of selected shrubs and trees.

IV. Watering

- A. Hoses – well-made hose consists of three main parts: The skin (outer section); several inner layers or plies (plies); central core through which the water moves.
 - 1. Always use good quality hose. A cheap hose that kinks easily will soon crack and be frustrating to use.
 - 2. Plys (plies) – Rating used for hoses. Has to do with hose construction.
 - a. Best – core made of extra-heavy rubber inner tube, wrapped with two layers of synthetic mesh fiber then covered with an outer rubber skin.
 - b. Better – core made of light- to medium- rubber tube wrapped with one layer of synthetic mesh and covered with outer rubber skin.
 - c. Good – may cost 50% less than a ‘best’ one.
 - 3. Couplings – Solid brass are best: they are strong and rust proof. Next in quality would be round brass, then galvanized steel. Plastic is the last and least desirable choice.
 - 4. Diameter of hose – The smaller the diameter, the less water the hose will deliver in a given period.
 - 5. Length – Select appropriate length to meet need. A shorter hose is lighter but may not reach all areas needed. A longer hose will be heavier to use.
 - 6. Types of hoses: Rubber hoses are the best. Next are nylon and vinyl hoses. Two-ply vinyl hoses do not last long, may break, kink easily and are difficult to roll up.
 - 7. Hose reels and hangers
 - 8. Hose repairs

- B. Nozzles and Heads – allow flexibility when using the hose: Don’t have to kink the hose to temporarily stop the flow of water; don’t have to place thumb over end of hose to create a hard stream of water; can change water spray from soft rain to concentrated stream.

V. Equipment needed to keep tools clean and sharp.

- A. Hoses: hose down tools on way back to storage facility.
- B. Stick or stiff brush: removes caked soil or debris.
- C. Sand paper, sanding blocks: Clean debris and some rust from metal parts. Wood parts that are dry, cracked and rough.
- D. Penetrating Oil: Spray all metal parts with penetrating oil after cleaning of debris. Oil will pass through water and coat metal with a thin film that will prevent rust.
- E. Lubricating oil or grease – keeps parts moving freely.
- F. Bucket filled with sand and oil can easily clean digging tools.



- G. Boiled Linseed oil: Once per year, wipe wood parts with boiled linseed oil to condition wood and prevent it from drying out and cracking. Paint first coat then allow wood to sit for a day while oil penetrates pores. Apply a second coat two days later. Finally, wipe wood with rag soaked in linseed oil. No oil should be left on the surface, just a very light film.
- H. Vise – to hold tools while they are cleaned, sharpened or repaired.
- I. Bench grinder – Electrical motors that turn abrasive wheels. Many grinders have an abrasive wheel on one side of the motor and a wire brush mounted on the other side. The wheel sharpens tools and the brush removes rust. The grinder sharpens faster but less precisely than files or whetstones. It also removes metal the fastest and thus produces the most wear. The grinder can be used for badly nicked or dulled tools such as axes, mattocks and rotary mower blades. Always wear protective eyewear when using a grinder.
- J. Electrical drill – to mend damaged or broken handles or other parts. If drill comes with a grinding disc, it can be used to remove rust.
- K. Files – remove metal more quickly than whetstones. Best for use on spades, hoes or shovels. Not for use on finer tools such as pruning shears, loppers or knives.
 - 1. Cutting edges or serrations come in two basic patterns:
 - a. single cut with parallel serrations: mill file
 - b. double cut with two serrations that run at opposite angles to form a checkerboard pattern.
 - 2. Mill files – best for garden tools
 - 3. Double cut files – coarse, remove metal quickly, remove burrs quickly.
 - 4. Files are designed to be pushed, not pulled. Never use a file without a handle. The tang (pointed end of the file) fits into a wood or plastic handle. Serious injury can result from using a file without a handle.
 - 6. Files are graded according to their coarseness.
 - a. Coarse is roughest grade
 - b. Bastard
 - c. Second
 - d. Smooth – finest grade
 - 7. Coarseness also refers to length of the file. A 14-inch bastard file is coarser than an 8-inch bastard file because its serrations are more widely spaced.
 - 8. A flat 8- to 10-inch bastard file and a flat 8- to 10- inch second file will handle most work.
 - 9. Knife file – for sharpening pruning saws – files must fit to size of saw’s teeth.
 - 10. Round file – for sharpening chain saws.
 - a. Saw teeth vary greatly in size and number per inch.
 - b. Match file to specific saw.



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11. Files should not be sharpened. Keep clean by periodic scrubbing with a wire brush to remove metal particles between the serrations.
- L. Whetstones – Used to hone fine edges or metal that is too hard for the file, particularly on knives, shears, scythes, and axes.
 1. Oiled whetstones (oilstones) – those that require use of oil before and during sharpening.
 - a. Used more commonly
 - b. Must be kept oiled while in use
 - c. New stone must be soaked for day or so in lightweight oil prior to first use, to soak up as much oil as possible.
 - d. Before each use, add a few drops of oil on the stone.
 - e. After each use, wipe oil off.
 - f. Keep in a covered case so it will not gather dust.
 2. Drystones – do not require oil before or during use.
 - a. Surface crumbles away during use. Constantly renews itself, but wears out much faster than oilstone.
 - b. Generally carried around for on-the-spot sharpening of tools.
 3. Shapes:
 - a. Flat (bench stone) – first choice for general use.
 - 1) Coarse side for sharpening an edge quickly
 - 2) Smooth side for fine honing
 - 3) Stone is kept stationary and item to be sharpened is passed back and forth over it.
 - b. Round – has both coarse and smooth sides. Held in hand and passed over item to be sharpened.
 - c. Long and tapered – come in variety of sizes. Used to sharpen sickles, scythes, scissors and shears. Often are Drystones.

M. Lubricating

1. Hand tools that have moving parts – pruning tools.
 - a. Apply a few drops of oil to moving parts each time tool is sharpened.
 - b. Lubricate tool if parts stick or lack their original smooth action.
2. Penetrating Oils – designed primarily to spray on metal tools to prevent rust. Do not use as a lubricant – too lightweight to

last.

VI. Safety

- A. Use common sense.
- B. Plan ahead.
- C. Keep working conditions neat.
- D. Work slowly, methodically and always keep your balance.
- E. Safety/ protective equipment.
 1. Gloves – protect hands from blisters, splinters and cuts.
 - a. Leather gloves last a long time but are expensive.



- b. Cotton gloves are less expensive but may not provide as much protection.
 - c. Use rubber or plastic disposable gloves when working with chemicals.
2. Work Boots – select what best meets your needs. Select steel-toed boots when working with heavy materials or tools.
 3. Safety Goggles
 4. Hard hat
 5. Ear Protectors
 6. Dust Masks - work well in dusty conditions
 7. Respirators – Filter the air and should be worn when spraying pesticides.

Bibliography and References

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