



Match Engine Power To Pump Requirements

A power source capable of driving a pump at the volume and pressure for which it was designed is a necessity. When you buy an engine-pump system, manufacturers supply engines with enough power to drive the pump at its maximum output.

Unfortunately, it sometimes becomes necessary to replace an engine or pump. If engine output is not matched to pump requirements, the mismatch may become a troublesome and expensive venture.

Pounds per square inch (p.s.i.) and gallons per minute (g.p.m.) can be measured by gauges on almost every modern pump. These two items may be used to calculate how much power will be needed to drive a specific pump. Maximum p.s.i. and g.p.m. are found also on pump specification sheets.

The following formula may be used to calculate the *minimum* horsepower needed to operate a pump adequately.

$$\text{Horsepower} = \frac{(\text{p.s.i.}) \times (\text{g.p.m.})}{1730 \times (\text{pump efficiency, } 80\%)}$$

To determine the horsepower needed to drive a pump designed to deliver 10 gals. per minute at 400 lbs. per square in., first multiply g.p.m. (10) by p.s.i. (400). This gives 4,000. Next multiply 80% pump efficiency (0.8) by the constant 1730 to get the divisor 1,384. Now the formula is stated:

$$\text{Horsepower} = \frac{4,000}{1,384}$$

Divide 4,000 by 1,384 and you'll find that 2.89 hp. is needed to drive a pump, 80% efficient, to produce 10 g.p.m. at 400 p.s.i. This horsepower value is the minimum needed for a pump that is 80% efficient.

Like many other machines, pumps are not 100% efficient. If they are well maintained, however, 80% effectiveness will remain relatively constant.

Crownvetch Versatility, Maintenance Ease Told

Crownvetch, a landscape material for beautification, erosion control, or weed control, is most effectively planted in existing soil conditions according to Fred Grau, Grasslyn, Inc., president. Grasslyn markets seed for the groundcover plant.

Grau explains that special slope preparation by applying layers of topsoil should be avoided because the plant roots will concentrate in the topsoil layer; heavy rainfall can then make the layer slide. As crownvetch is not usually mowed, slopes may be left in rough condition, with any rocks, logs, branches, or other debris left in place. Further erosion control will be achieved if seeding is done horizontally across the slopes.

Early spring planting in northern states, and fall or early winter planting in the Deep South, is suggested. And for rapid soil root-binding, the company notes that companion grasses should be seeded with crownvetch. In northern climates, Kentucky 31 fescue at 30-40 lbs. per acre, with 20 lbs. of crownvetch seed can be used. Domestic-grown creeping red fescue or perennial ryegrass may also be used. Kentucky 31 fescue or weeping lovegrass may be used in the South with the cover crop. Lovegrass seed should be held to 3 to 5 lbs./A.

Maximum protection is afforded by the plant when it is allowed to develop without mowing. But where it must be mowed, the company suggests a delay until seed pods are brown. Then it should be cut at 5-inch height with a flail or rotary mower.

Ureaform, a slow-release, insoluble, nonburning long-lasting type of nitrogen fertilizer, is highly beneficial to establishment of crownvetch, Grau points out. Suggested specifications for application are 440 lbs. per acre of granular ureaform.

Additional information on crownvetch can be obtained by writing to Grasslyn, Inc., Box 177, College Park, Md. 20740.