

## Managing “Sacrifice” Lots: Livestock Heavy Use Areas

A “sacrifice” lot is a designated livestock heavy use area, strategically located on the farm for the purpose of concentrating animals to feed, shelter, separate and care for them. Utilization of this sacrifice or heavy use area reduces labor, provides a safe and healthy husbandry environment and avoids livestock damage to other areas of the farm. A well designed and managed sacrifice lot will also reduce the negative environmental impacts of a confined and concentrated livestock operation. Animal segregation and confinement lots may be appropriately named as follows: feed lot, exercise lot, wintering lot, maternity lot, health or sick lot, loafing lot, breeding lot or turn-out lot. Specific animal breeds and sex may also determine the designation of a livestock management area, such as a calf lot, heifer lot, cow lot or bull lot.



For pasture operations the most common and necessary sacrifice lot typically is comprised of an area sufficient to provide the combined duty of feeding, exercising and wintering animals. Successful pasture operations have several pasture paddocks in rotation and incorporate a sacrifice lot to appropriately time grazing periods daily and seasonally as required. Sacrifice lots allow an operator to increase a farms animal carrying capacity and maximize grazing profits through controlled grazing. During periods of drought or dormancy a pasture may be severely damaged by animal traffic and grazing, therefore, the utilization of a sacrifice lot is imperative. When necessary, animals are confined to a sacrifice area to allow the successful establishment of new forage seeding, or maintain an adequate forage regrowth interval. Animal health management may require limiting lush pasturage, or holding livestock during applications of herbicides, insecticides and fertilizers to pastures. It may be desirable to also hold animals in a confinement lot to facilitate hay making to further maximize annual forage yield. Many farm managers utilize a sacrifice lot on a daily basis to gather livestock to feed pasture supplements necessary for a balanced ration, to water, to shelter, and to examine animal health and condition. By default feeding and sheltering of livestock in a sacrifice lot will capture 40 to 100% of daily manure deposition, variable by seasonal duration of daily pasturing. This accumulated manure may be stored, and then timely spread according to pasture soil test requirements to better fulfill the farm nutrient management plan.

### Sacrifice Lot Engineering

A successful sacrifice lot is engineered, a carefully thought out and designed area which incorporates integral husbandry components. The area should be graded to drain free of standing water, and have a grass buffer perimeter sufficient to control offsite manure and soil loss. During the site leveling phase it may be required to buildup low areas, and install subsurface drainage and above ground swales. The lot should be centrally located to the barn and pasture paddocks, and should be sized according to the livestock species and number of animals, making sure to have adequate feed bunk space, and water access. It is important to consider during the lot design a sized and predetermined manure storage structure that coincides with the desired manure cleanout interval. Sacrifice lots are usually capped with soil, sand or stone dust to create level injury free livestock area. It is very important to keep refreshed capping materials in place over the underlying base materials to avoid hoof injury. Maintenance to a sacrifice lot requires the removal of manure and a portion of soiled capping product (spoil), followed by a replacement with fresh capping material and leveling. Often the lot spoil makes an excellent field leveler or patch product usually requiring only lime to correct pH prior to seeding. Frequent removal of manure and spoil insures a disease free and comfortable environment for livestock and handlers. Sand and stone dust materials are



sterile and provide an excellent tool for eradicating contagious disease outbreaks in a herd. Also plan to remove manure from around fed bunks and waterers every two weeks to control flies, internal parasites, and contagious diseases.

### Sacrifice Lot Components

The engineering components of a sacrifice lot need to be properly chosen and strategically integrated into a project for cost effectiveness and durability. Except for the installation of concrete most of the lot components are readily handled with a moderate sized loader and scraper blade equipped farm tractor; therefore, only the laying of concrete has a contracted labor cost included in the estimate. All of the following lot components will be evaluated and cost estimated for a 500ft<sup>2</sup> application delivered to the farm with installation labor provided by the farm manager:

<b>Component</b>	<b>*Required Amount</b>	<b>*Estimated Cost</b>
Geotextile Fabric	500 square foot roll	\$ 350
1-2" Stone	6" depth-18-tons@ \$15/ton	\$ 270
CR6 (Crush & Run)	6" depth-18-tons@ \$14/ton	\$ 252
Pea Gravel	4" depth-5-tons@ \$15/ton	\$ 150
Stone Dust	4" depth-8.5-tons@ \$16/ton	\$ 136
Screened Sand	4" depth-7.5-tons@ \$8/ton	\$ 60
<b>*per 500ft<sup>2</sup></b>		

### Cost Effective Engineering for Sacrifice Lots

Certain areas of a lot may be best served by concrete, which typically includes the manure storage structure, permanent feed bunk areas and waterers. Installed concrete costs approximately \$3,800 per 500ft<sup>2</sup> and requires critical site grading and preparation; the inclusion of a well packed 6-inch CR6 stone base with a uniform 4-inch concrete layer. CR6 is a blend of pulverized dust to 1.5 inch stone that packs readily into a dense base. Certain areas of the lot may be considered heavy traffic areas that require added base protection for durability, but are considered too large for concrete. Often referred to as an armored area, a geotextile engineered area consists of a level and packed soil covered with geotextile fabric that is stapled in place and overlapped 1-foot. A 6-inch layer of large 1-2 inch stone is placed on the geotextile fabric, followed by a 4-inch layer of pea gravel, and then capped with 4-inches of stone dust. The average cost to armor heavy traffic areas is \$900 per 500ft<sup>2</sup>, which is about 1/4 of the cost of concrete. Areas in a lot that typically require armoring are entrances to barns, pasture turnout lanes, traffic areas around bale feeders, feed bunks, and concrete aprons. The geotextile engineered areas are very durable if the surface is regularly scrapped off and refreshed with the capping materials.

Fortunately, the largest portion of a sacrifice lot will only require minimal site grading and preparation before capping with stone dust or screened sand. Capping a packed soil base with 4-inches of stone dust will require 8.5 tons at \$16 per ton, costing \$136 per 500ft<sup>2</sup>; whereas, 4-inches of screened sand will require 7.5 tons at \$8 per ton, costing \$60 per 500ft<sup>2</sup>. Areas that require building up or leveling may require a stone base with 1-2-inch stone and/or CR6 before capping. A 6-inch CR6 base will require 18-tons at \$14/ton, costing \$252 per 500ft<sup>2</sup>. A number of local quarry websites have current price quotes and online product calculators for estimating the project requirements and costs.

### Green Engineered Sacrifice Lots

If the sacrifice lot is large enough to support weed growth, then consider a green engineered lot that utilizes an annual cover crop planting system. There certainly are sound economic reasons for developing a lot management strategy which also maximizes pasturing potential. The answer is frequent and scheduled planting of annual forages in these areas. Light tillage prior to seasonal plantings may be all that is required for successful broadcast seeding with inexpensive equipment.

The following is an example of a green engineered annual pasture lot system: 1) In the fall on lightly tilled soil, broadcast 120 lbs/acre cereal rye variety Abruzzi + 30 lbs/acre of annual ryegrass variety Marshall. After, seeding lightly harrow and roll firmly. This area will quickly green and support moderate to heavy pasturing into the winter, and will be especially useful if rotational use of the lot is possible. Lime and nitrogen may be the only fertilizer nutrients required. Add lime as required by soil testing, and apply nitrogen if the crop appears deficient after emergence. 2) In early March, on the lightly tilled and repaired soil, sow the same seed mixture, or oats may be substituted for the cereal rye. 3) Then overseed the lot in Mid-May with a broadcast seeding of 30lbs/acre German foxtail millet, followed by light tillage and a firming of the soil. All of the above mentioned seeding might also be accomplished with a grain-drill followed by a roller-harrow or culti-packer. The adding of the annual legumes: lespedeza, vetch, clover and soybeans to the fall, early spring and summer seedings will increase biomass, improve nutrition and palatability, further reduce weed competition and potentially eliminate the need to fertilize with nitrogen.



**German foxtail millet in 30-days**

**Annual Pasture Lot System Advantage**

The advantages of these annual forages for a green engineered sacrifice lot are multi-fold such as; providing highly palatable forage, aggressive competition with weeds, reducing erosion, capturing nutrients, and improving soil organic matter and tilth. The annual pasture lot system may lengthen the maintenance interval for some sacrifice lots, and certainly reduce unwanted environmental and animal health impacts. This system will certainly beautify the farm by reducing dust and mud and unwanted weeds. For details about developing an annual pasture lot system for your farm give your local Extension office a call.

**Annual Cover Crop Options for Delmarva**

<b>Crop Species</b>	<b>Best Planting Date</b>	<b>Seeding Rate/A</b>	<b>Seed Cost/A*</b>
Austrian Winter Pea	March 1st	75 lbs	\$39.00
Oats	March 1st	80 lbs	\$22.56
Striate Lespedeza (Kobe)	March 5th	35 lbs	\$28.00
Korean Lespedeza	March 10th	30 lbs	\$21.60
Forage Soybeans	May 12th	75 lbs	\$45.00
German Foxtail Millet	May 25th	30 lbs	\$15.72
Pearl Millet	May 25th	35 lbs	\$22.40
Hairy Vetch	September 1st	25 lbs	\$31.25
Crimson Clover	September 1st	25 lbs	\$34.13
Annual Ryegrass	September 15th	30 lbs	\$26.10
Cereal Rye	September 25th	120 lbs	\$19.20

**\*Seed Cost is based upon industry price quotes per 50 lb unit.**

**R. David Myers  
Extension Educator, Agriculture  
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