Composting Swine Waste

Should you, as a swine producer consider composting as an alternative waste management strategy? The Illinois State University Research and Teaching Farm composts all the livestock waste generated on the farm. The farm houses 540 animal units (A.U.) representing beef cattle, dairy, sheep, and swine. The farm composts 3,120 tons of livestock waste and 2,278 tons of carbon based waste (straws, corn stalks, landscape waste, etc.) producing 2,513 tons of cured compost, annually. The average cost to produce a ton of cured compost at the ISU Farm is $31.90:ton.

Markets for Compost

There are two basic markets for compost. One is the “volume” market for low quality compost. Low quality compost is given away or sold at low prices as cover for landfills, for use in abandoned mine reclamation, as an agriculture soil amendment, etc. The other market is the “value-added” market. Value-added markets are characterized by rigid quality standards with potentially higher economic return margins. End users of value-added compost include:

- Landscapers
- Sport turf users
- Nurseries
- Horticulturists
- Organic vegetable growers
- Organic soybean producers
- Others
Example Scenarios
3,000 sows gestation to nursery
- represents 3,012 A.U.
- produces 4,380,000 gal:slurry:year
- for composting requires solid-liquid separation removing at least 40% of the separable solids
- generates 630,720 lbs. solids @ 40% D.M.
- requires 191,850 lbs. or 96 tons of carbon waste to compost
- 99 tons is approximately 6.5 semi loads of wood chips of 99 1-ton corn stalk stacks
- if 1.5 tons of stalks are harvested per acre, 66 acres of stalks are necessary
- need 5 acre compost site
- Generates 190 tons of compost
- extends time between lagoon dreggings by 40%

1,500 Sows Gestation to Nursery
- represents 1,506 A.U.
- produces 2,190,000 gal:slurry:year
- for composting requires solid-liquid separation removing at least 40% of the separable solids
- generates 315,360 lbs. Solids @ 40% D.M.
- requires 98,859 lbs or 50 tons of carbon waste to compost
- 50 tons is approximately 5 semi loads of wood chips or 50, 1-ton corn stalk stacks
- if 1.5 tons of stalks are harvested per acre, 34 acres of stalks are necessary
- need 1.5 acre compost site
- generated 95 tons of compost
- extends time between lagoon dreggings by 40%

Annual Charges for Composting at ISU
700 sows gestation to nursery
- represents 705 A.U.
- produces 1,022,000 gal:slurry:year
- assumes all the slurry is composted
- requires 2,883,386 lbs. or 1,442 tons of carbon waste to compost
- 1,442 tons is the equivalent fall leaf collection of a municipality of 50,000 people
- need a 10.0 acre compost site
- generates 2,784 tons of compost

30,223 Finishers
- represents 12,089 A.U.
- represents a years production from 1,500 sows
- produces 5,440,140 gal:slurry:year
- for composting requires solid-liquid separation removing at least 40% of the separable solids
- generates 1,958,454 lbs. solids @ 40% D.M.
- requires 613,935 lbs. or 307 tons of carbon waste to compost
- 307 tons is approximately 21 semi loads of wood chips or 307, 1-ton corn stalk stacks
- if 1.5 tons of stalks are harvested per acre 205 acres of stalks are necessary
- need 20 acre compost site
- generates 593 tons of compost
- extends time between dreggings by 40%