# Arnold Kaslon

Wetland after construction

## Size:

**35 sow farrow to finish confinement**

## Challenge:

Mr. Kaslon built a small swine unit with a waste storage lagoon in 1992. He quit raising pigs in 2001 and wanted to properly close the unit down. Mr. Kaslon's objective was to remove the nutrients from the lagoon and apply it to his crop land. He wanted to convert the lagoon into a fresh wetland for fish and wildlife habitat.

## Demonstrated Practices:

- Lagoon Abandonment
- Sludge/Manure Land Application
- Wetland Habitat Development

| ETF Contribution | Producer Contribution | Total Project Cost |
|---|---|---|
| $5,600 | $4,300 | $9,900 |
| **Demonstrated Practices:** Lagoon Abandonment, Sludge/Manure Land Application, Wetland Habitat Development | | |

## Design Objectives:

The existing lagoon was excavated to remove the sludge which was then land applied. Excavation below the original construction removed any leaching that had occurred over time below the lagoon bottom. The lagoon was expanded for increased capacity for fish habitat. The wetland was constructed with a depth of 8 feet on one end and stair stepped to a shallow water level of 2 feet on the other end. Fresh water was supplied from an existing domestic well on the farm. A berm was constructed around the wetland to exclude any surface runoff. Habitat was constructed in the wetland for different species of fish. Wildlife habitat around the wetland consists of trees, shrubs, and native grasses.

## Design

The sludge in the lagoon and crop field soils were sampled. The sludge field-application rate was calculated to apply a five-year supply of $P_2O_5$ for irrigated corn. The liquid and slurry portion of the lagoon was agitated, pumped, and applied to a nearby corn field. After the liquid portion was applied, the remaining solid sludge was excavated out of the lagoon with a dozer and excavator. The sludge was loaded into manure spreaders and applied at agronomic rates to Mr. Kaslon's nearby irrigated corn fields.

The lagoon was over-excavated to minimize the contamination of fresh water with phosphorous and nitrogen. The lagoon's top width and length were increased. For safety, the end slopes were flattened to a 6:1 slope to allow a person an easy exit. A berm was constructed around the wetland to prevent runoff drainage from the crop field entering the wetland. A fresh water inlet pipe from a ground water well was installed to maintain the water level, and an emergency corrugated metal pipe spillway was installed. Once filled, the water was tested for dissolved oxygen and ammonia to make sure the water would be suitable for fish. Once the water was safe, fish were released. Mr. Kaslon has been adding annual treatments of barley straw to help prevent algae growth in the pond.

The wetland one year after construction.

## Environmental Benefits:

With the nutrients removed and the lagoon converted to a fresh water wetland, any remaining nutrients were isolated and the risk of groundwater contamination was minimized. The nutrients in the liquid and solid portions of the sludge were land applied at agronomic rates. Now the nutrients in the sludge are available as an excellent fertilizer for the crops. The wetland and its habitat area now provide wildlife habitat and recreation for Mr. Kaslon's family.

A variety of plants is creating a welcome habitat.

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