Reference: Culver, D.A. 1996. Fertilization procedures for pond culture of walleye and saugeye. Pages 115-122 *in* R.C. Summerfelt, editor. Walleye culture manual. NCRAC Culture Series 101. North Central Regional Aquaculture Center Publications Office, Iowa State University, Ames. http://www.ncrac.org/Publications/

Calculating volume of pond

• Quarter-acre pond
• 148.5 ft x 73.4 ft = 10,900 sq.ft X Average depth is 5 ft = 54,500 cubic feet
• Convert to cubic meters
54,500 ft^3 x 1 m^3 / 35.31 ft^3 = 1,543.5 m^3

Inorganic Fertilizer Calculations

Nitrogen Concentration needed

• Target is 600 mg / L (micrograms per Liter)
Formula used:
(600 – Np) Vp
Vnf = Nf x 1,000
Where: Vnf = volume of N fertilizer needed (L)
Np= inorganic nitrogen concentration in pond
Vp = volume of pond
Nf = Nitrogen fertilizer concentration
1,000 = conversion factor L and m3 and mg and g
(600 – 0) 1543.5 m^3
Vnf = 396 x 1,000 = 2.34 L Fertilizer needed
• Assumes there is 0 Concentration in pond
• Most ponds this is the case after one week, though exceptions occur

Phosphorus Concentration needed

• Target is 30 mg / L
(30-Pp) Vp
Vpf = Pf x 1000
Where:
Vpf = volume of phosphorus needed in pond
Pp = Phosphorus concentration in pond
Vp = pond volume
Pf = Phosphorus concentration in fertilizer
1,000 = conversion factor
(30 – 0) 1543.5 m3
Vpf = 237.25 x 1,000 = 195 mL
Again, assumes zero concentration of phosphorus in pond

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Organic Fertilizer calculation

• P – 30 mg/ L Concentration
30 mg/ L x 1.54 million L (pond) = 46 g needed
Roughly, 0.1 lb needed
• N – 600 mg/ L Concentration

600 mg/ L x 1.54 million L (pond) = 926 g needed
Roughly, 2 lbs needed
50 lb bag has 1 lb of Nitrogen, 0.1 lb P
• We doubled the amount of alfalfa meal to 100 lbs per week, to give us 600 mg/ L N concentration, but also gave us a 60 mg/ L concentration for P.
– 10:1 Ratio, remember ideal is 20:1