

MPN PRACTICE PROBLEM ANSWERS

Agronomy 485

1. 12.0 g wet soil has 9.4 g OD soil

Total volume of initial dilution is 101.1 mL

Initial dilution is $101.1/9.4 = 10.8$

Key for MPN table is 5 1 1, which equals 0.46

P₂ dilution is 10^{-4}

$$\text{MPN} = (10.8/10.0) \times 0.46 \times 10^4 = \underline{5.0 \times 10^3}$$

CI factor is 3.3 for 5 tubes/dilution, 10-fold dilution;

therefore: $\underline{1.5 \times 10^3 = X = 1.7 \times 10^4}$

2. Key for MPN table is 5 4 4, which equals 3.5

P₂ dilution is 10^{-5}

$$\text{MPN} = (8.7/10.0) \times 3.5 \times 10^5 = \underline{3.0 \times 10^5}$$

CI factor is 3.3 for 5 tubes/dilution, 10-fold dilution;

therefore: $\underline{9.1 \times 10^4 = X = 9.9 \times 10^5}$

3. Key for MPN table is 5 0 5, which equals 0.95

P₂ dilution is 10^{-3}

$$\text{MPN} = (13.2/10.0) \times 0.95 \times 10^3 = \underline{1.3 \times 10^3}$$

CI factor is 3.3 for 5 tubes/dilution, 10-fold dilution;

therefore: $\underline{4.0 \times 10^2 = X = 4.3 \times 10^3}$