Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Homework 1

Equine Nutrition

1. What are the DE requirements for a 990 lb. mature idle horse?

DE(Mcal/d) = 1.4 + 0.03W(kg)

990 lbs / 2.2046 = 449.06 kg

DE(Mcal/d) = 1.4 + 0.03(449.06)

DE(Mcal/d) = **14.87**

1. What are the DE requirements for a 1350 lb. mature idle horse?

DE(Mcal/d) = 1.82 + 0.0383W – 0.000015W2

1350 lbs / 2.2046 = 612.36 kg

DE(Mcal/d) = 1.82 + 0.0383(612.36) – 0.000015(612.36)2

DE(Mcal/d) = 1.82 + 23.45 – 5.62

DE(Mcal/d) = **19.65**

1. How many pounds of alfalfa hay (sun cured, early bloom) would it take to satisfy the DE requirements for the 990 lb mature idle horse?

From Table:

Alfalfa Hay (Sun Cured, Early Bloom) = 1.02 Mcal/lb (As Fed Basis)

(14.87 Mcal/d) / (1.02 Mcal/lb) = **14.58** lbs per day of alfalfa hay should be fed to meet the DE requirements of a 990 lb mature idle horse

1. How many pounds of alfalfa hay (sun cured, early bloom) would it take to satisfy the DE requirements for the 1350 lb mature idle horse?

From Table:

Alfalfa Hay (Sun Cured, Early Bloom) = 1.02 Mcal/lb (As Fed Basis)

(19.65 Mcal/d) / (1.02 Mcal/lb) = **19.26** lbs per day of alfalfa hay should be fed to meet the DE requirements of a 1350 lb mature idle horse

1. How many pounds of coastal bermudagrass hay (sun cured, 29 – 42 days growth) would it take to satisfy the DE requirements for the 990 lb mature idle horse?

From Table:

Coastal Bermudagrass Hay (Sun Cured, 29 – 42 d) = 0.89 Mcal/lb (As Fed Basis)

(14.87 Mcal/d) / (0.89 Mcal/lb) = **16.71** lbs per day of coastal bermudagrass hay should be fed to meet the DE requirements of a 990 lb mature idle horse

1. How many pounds of bermudagrass hay (sun cured, 29 – 42 days growth) would it take to satisfy the DE requirements for the 1350 lb mature idle horse?

From Table:

Coastal Bermudagrass Hay (Sun Cured, 29 – 42 d) = 0.89 Mcal/lb (As Fed Basis)

(19.65 Mcal/d) / (0.89 Mcal/lb) = **22.08** lbs per day of coastal bermudagrass hay should be fed to meet the DE requirements of a 1350 lb mature idle horse

1. What are the DE requirements for an 11 month old weanling gaining 1.5 pounds per day that weighs 600 lbs?

DE(Mcal/d) = maintenance DE(Mcal/d) + (4.81 + 1.17X – 0.023X2)(ADG) X = age in months

600 lbs / 2.2046 = 272.16kg

1.5 lbs / 2.2046 = 0.68 kg

DE(Mcal/d) = 1.4 + 0.03(272.16) + (4.81 + 1.17(11) – 0.023(11)2)(0.68)

DE(Mcal/d) = 9.56 + (4.81 + 12.87 – 2.78)(0.68)

DE(Mcal/d) =**19.69**

1. What are the DE requirements for a mare in her 11th month of gestation weighing 1050 pounds?

1050 / 2.2046 = 476.28kg

DE(Mcal/d) = 1.4 + 0.03(476.28)

DE(Mcal/d) = 15.69 x 1.20

DE(Mcal/d) = **18.83**

1. How many pounds of alfalfa hay (sun cured, early bloom) would the 1050 pound pregnant mare need to receive to satisfy her DE requirements?

From Table:

Alfalfa Hay (Sun Cured, Early Bloom) = 1.02 Mcal/lb (As Fed Basis)

18.83 Mcal/d / (1.02 Mcal/lb) = **18.46** lbs per day of alfalfa hay should be fed to meet the DE requirements of a 1050 lb mature idle horse

1. How much alfalfa hay(sun cured, early bloom) would an 1100 lb lactating mare need to receive to satisfy her daily DE requirements (assume she is producing 2.5% of her BW in milk/d)? Also, what % BW in hay would she be receiving?

1100 / 2.2046 = 498.96 lbs

DE(Mcal/d) = 1.4 + 0.03 (498.96) = 16.37

498.96 x .025 = 12.47 kg of milk produced

12.47kg x 792kcal = 9879 kcal

9879 kcal = 9.88 Mcal/d

16.37 + 9.88 = 26.25 Mcal/d

26.25 Mcal/d / 1.02 = **25.74 lbs of alfalfa hay / d**

25.74 /1100 = .0234 x 100 = **2.34% BW / d**

\* 1 kg = 2.2046 pounds

\* Use as-fed numbers on tables