

## Do you have pets?

Numbers are based on the SEWTHA book. They are coming from the energy that is necessary to keep alive the animal that the pets are eating. For example, we know that humans with a weight of 65 kg roughly consume 2600 kcal per day or 3 kWh/d. Furthermore, we assume that the pets have a diverse diet and eat a mixture of chicken, pork, and beef. The trick is now to know how much chicken is necessary to cover the dietary needs of the pets. As an example, if you eat half a pound of chicken every day, then you need about 25 pounds of chicken constantly alive and ready to be eaten (by keeping in mind that the average lifetime of a chicken is sadly only 50 days). The same principle applies to pigs and cows. Thus, if you eat e.g. 227 g of meat per day (i.e. half a pound), you need 8 pounds of chicken, 70 pounds of pork, and 170 pounds of cow meat constantly alive. That is 110kg of meat and 170kg of animal since only  $\frac{2}{3}$  of the animal is used as meat. Thus, we get a conversion factor of  $C = 170\text{kg}/227\text{g} = 0.749 \text{ kg/g}$ .

Now if we assume that our cat eats 50g of a mixture of chicken, pork, and beef, and we assume that the animals have the same metabolism that humans, then we get an energy of  $50\text{g} * 0.749 \text{ kg/g} * 3 \text{ kWh/d} / 65 \text{ kg} = 1.7 \text{ kWh/d/p}$  or approx. 2 kWh/d/p.

Thus, we arrive at the following values:

- Cat eats 50g of meat per day  $\rightarrow 2 \text{ kWh/d/p}$
- Dog eats 200g of meat per day  $\rightarrow 9 \text{ kWh/d/p}$
- Horse eats vegetables. How many vegetables are necessary? Assuming the horse to have 400kg mass, then we need to supply it with 400kg times  $3 \text{ kWh/d} / 65\text{kg} = 18 \text{ kWh/d/p}$ .

These values do not contain the energy that is necessary to grow and farm the food that the animals themselves eat!