FACTSHEET No. 17

ENERGY USE IN PLANT BREAD PRODUCTION

- Bread is one of the most energy efficient foods available.

- Products containing milk, meat, fish, fruit and vegetables are not as effective as bread in converting fossil fuel energy into food energy. Part of the reason for this is the mechanism in which heat is transferred through the aerated dough/bread structure by evaporation and condensation. This enables an 800g loaf to be baked in 20-25 minutes, which is considerably faster than the time for an 800g piece of meat.

- The chart shows you how energy efficient bread is when compared with other foods.

Food Industry Sector ***Product***	**Total fossil fuel energy required for production** ***Megajoules/Kg***
Bread and bread products	**18**
Biscuits	**38**
Milk and milk products	**53**
Sugar	**55**
Fruit and vegetable products	**60**
Cocoa, chocolate and sugar confectionery	**91**
Meat and fish products (cooked)	**143**

Source: RHM Research and Engineering Limited, Dr Gordon Beech (published in the Journal of the Science of Food and Agriculture 1974)

- Twice as much energy (36 mJ per kg) is required to produce a kilogram of biscuits and eight times (143 mJ per kg) more energy is required to produce meat and fish products.

- Meat and fish products have the lowest output ratio at 7:1.

- It takes only 18 mJ of fossil fuel per kg of plant-produced bread.
- The ratio of fossil fuel energy needed to produce food compared with the food energy output shows bread at the top of the list, with a ratio of 1:5.