7 food wonders

1. Wonder women

Almost all the world's billion farmers are poor people struggling on small plots of land, but they are the true heroes in feeding the world – or, rather, heroines, since most of the work is usually done by women. These farmers make up about half of the world's poor, but they produce four fifths of its food. They also produce much more food per hectare than the richer, more mechanized farmers, and have the biggest potential for increasing yield even further. Given proper support – including being able to get hold of credit – they could increase harvests worldwide by 5 per cent a year, faster than the Green Revolution, and four times more rapidly than population growth.

PHOTO: STEEN WREN/UNEP/TOPHAM

2. Food forests

Everywhere rainforests are being felled to produce farmland for growing food. But the land is poor and quickly turns to dust. For centuries the peoples of the forests have practised a better way – cultivating 'food forests', without cutting down the trees. The Lua people of northern Thailand, the Laconda Maya of Mexico and the Chagga people of Tanzania, for example, blend their cultivation into the forest at differing heights. The roof of the forest remains the tops of the tallest trees, as it has always done. Beneath that the Chagga grow 15 different types of bananas and other fruit trees, then coffee bushes, then vegetables at ground level. As a result, more people can live off a square kilometre of their land than anywhere else in Tanzania.

PHOTO: PIET SABBE

3. From the rock

Imagine that your land was almost all bare rock, and little rain fell on it. Could you turn it into some of the world's most productive farmland? That is what the Dogon people of Mali in West Africa have done. Seven centuries ago they fled from invaders into the rocky granite and ironstone Dogon mountains, rising on the fringes of the Sahara Desert, which had only thin patches of sandy soil amid the bare stone. But they have looked after the soil so well, planting every available square metre with specially selected crops, and recycling every gram of human and animal waste, that they achieve yields that rival the world's most productive farmers and market gardeners.

PHOTO: TOPHAM PICTUREPOINT

PHOTO: GRIMALDO RENGIFO/UNEP/TOPHAM

4. in deep trouble

Much of the world's harvest depends on a giant, unseen, underground sea. The Ogallala Aquifer lies under eight US states and originally held 200 times as much water as the annual flow of the Colorado River; it waters one fifth of US irrigated land and is vital to the harvests of the US Midwest which help to feed more than 100 countries. But it is steadily being depleted through overuse. Twelve billion cubic metres of water a year are pumped from it, and very little is returned through rainfall. Already one fifth of the farmers who once used the water can no longer do so – and irrigation has been abandoned for over a million hectares. At present rates another 2 billion hectares are expected to dry up by 2020.

PHOTO: THOMAS LANG /UNEP/TOPHAM

5. take one camel...

Fancy a blow-out? How about the world's most daunting menu item – roasted stuffed camel. It's a sort of culinary Russian doll. You start by cooking eggs, which are then are stuffed into fish. The fish are then inserted into cooked chickens. The chickens are crammed into a roast sheep. And finally the sheep is stuffed into the camel. Then you get carving. The dish is still served very occasionally for wedding feasts by the Bedouin tribespeople of the Middle East. What they have for dessert in the desert to finish off the feast is not recorded.

PHOTO: CHIN KI AU /UNEP/TOPHAM

6. researching rice

The 3 billion people who depend on rice owe much to the International Rice Research Institute (IRRI) in the Philippines. IRRI – one of a network of 16 international research centres around the world – was one of the pioneers of the Green Revolution, where scientists used conventional plant-breeding techniques to produce high-yielding crops. Its first such rice, called IR8, staved off a famine predicted for Asia in the 1970s. IRRI has produced many such new strains since, keeps a genebank of 90,000 varieties of rice and helped war-ravaged Cambodia become self-sufficient in the grain.

PHOTO: CCICCD

7. Magic Mud

Our planet is not called Earth for nothing. For the earth is its flesh, and all plants and animals on Earth – including us – depend on it. But it is very fragile, and quickly washes and blows away if it is overused. Over two decades the world has lost some 500 million tonnes of topsoil, the same amount as covers the whole of the United States. One quarter of the world's farmland – an area larger that the whole of the United States and Mexico combined – has been seriously affected by such erosion. And about three quarters of the planet's pastureland has been degraded by overgrazing.