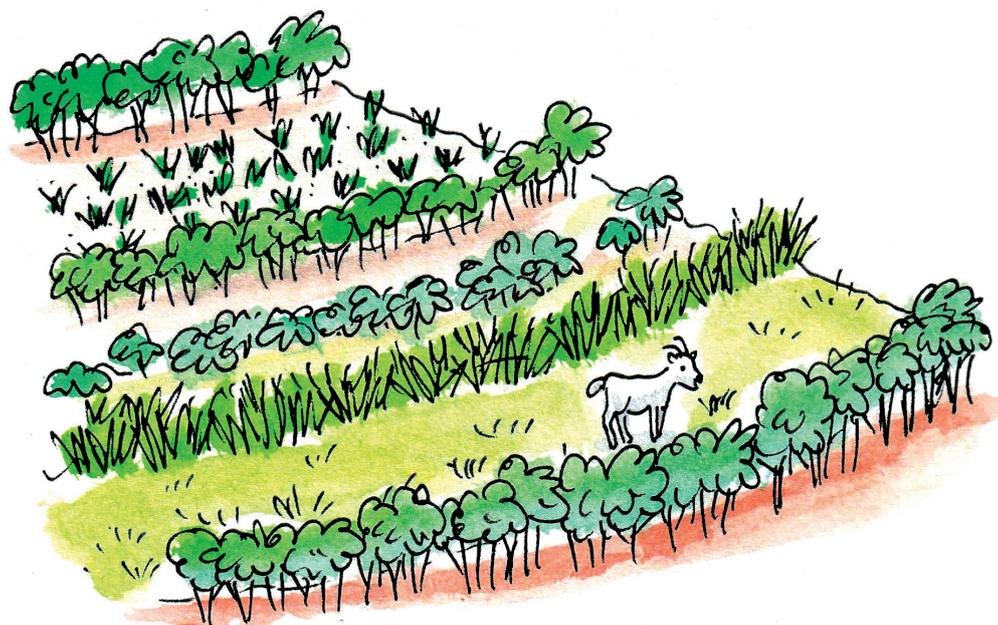


# BEST PRACTICE GUIDE

## Contour farming



### How can farmers increase yields and save soil?

Growing crops well and looking after our forests is important for the health of people, animals and our landscape in the Solomon Islands. But the Solomon Islands faces problems from drought and flood, and from forest clearing due to growing population, logging, mining and hydropower development. These problems are being made worse by climate change.

In the Solomon Islands, soil fertility, or the ability of the soil to produce good crops, is declining. Valuable topsoil is also being eroded by wind and rain. Floods and drought and not looking after the soil make this worse.

In 2020 Live & Learn Solomon Islands surveyed 180 village farmers from across the Solomon Islands about their challenges and successes in farming. Many of them are already using good farming practices, but there was high interest in improving their knowledge and skills in the following areas such as preventing soil erosion and loss of topsoil, increasing crop yields on existing lands, and reducing the impacts of flood and drought.

Contour farming, a way of farming on hillsides, is a valuable method in achieving these goals. Farming on hillsides can be difficult because heavy rain can wash away valuable topsoil, and

damage crops. In the dry season crops can dry out because there is not much water held in the soil. Contour farming helps to solve the two problems of water loss and soil loss. This method can include building large terraces for crops and trees or rice paddies, or simply digging swales – or trenches along a contour line – along a hill to ensure that water is managed and soil is not eroded.

## Story of Lionel's farm

*“In order to make a garden, we have to cultivate the hill or mountainside to grow food.”* - Lionel

Lionel, a farmer in Central Kwarae, Malaita, started contour farming in 2016 and has continued it each year since. He lives in a rugged part of Malaita, where hills and mountains dominate the landscape, making contour farming essential to ensuring there is enough productive land.



To prevent soil erosion on the hillsides, Lionel uses vetiver grass, a traditional method used around the world for stabilising soil in terraces. Lionel relies mainly on vetiver to act as a barrier and prevent run-off, meaning he has not needed to dig deep trenches. He also uses cover crops like Pueraria to both prevent the erosion of soil and increase its fertility. Pueraria is a common cover crop used across the Solomon Islands.

If other farmers use the same methods as Lionel, they can prevent soil erosion and limit damage to forests, which are important for the health of people, animals and our landscape in the Solomon Islands.

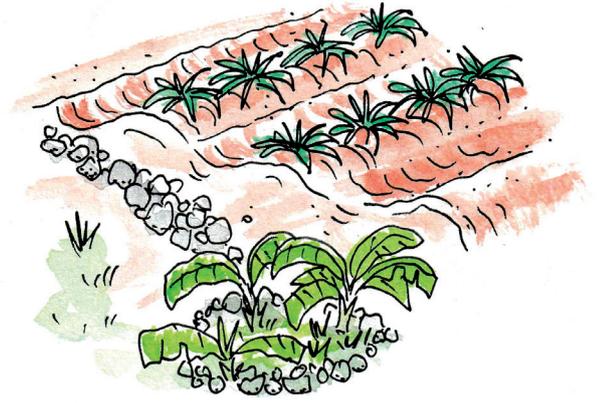
## How to introduce contour farming

*“Contour farming needs skills in designing contours and using plant resources to control soil erosion and soil fertility. The use of cover cropping is also a skill that needs to be furnished as a means to maintain soil fertility.”* - Lionel

There are various ways to contour a farm. The simplest is to map out the contour lines on the hillside and dig furrows across the hill so that each furrow continues at the same height. This allows water to soak in when it rains, rather than running downhill and creating erosion.



There are various ways to measure contours on a hillside and make sure furrows are level. One way is to use an A-frame contour tool, which is a bamboo or timber frame you can construct yourself. (See the manual *Woakem Land Kam Up Gud Fala* for details.)



When digging a trench and making a swale, rocks and dirt are dug out along the hill and piled up just below the trench. It is important to dig the trench to the same depth so that the base is level, preventing water from flowing along the bottom of the trench. On a gently sloping hill, swales can be created 3-10m apart, while on a steeper slope they should be closer together. All should be the same distance apart. It's also important to measure the swales correctly, plant along the contour bank as soon as it is created and include overflow points with water-loving plants such as taro, banana or leafy greens to soak up excess water.

Contour farming can be enhanced with the right use of plants to stabilise soil. Vetiver grass is an excellent plant for this purpose. Its dense roots hold soil firm, and it will also soak up excess water.

Lionel developed these skills through hands-on practice on the farm.

## What are the benefits?

By making the slopes available for planting, contour farming means additional land can be used to increase food security for farmers and villages. Used alongside cover cropping, it allows a diversity of crops to be planted, further helping food security as well as maintaining soil fertility.

Contour farming reduces the erosion of soil during periods of heavy rainfall. This in turn prevents rivers being muddied by soil run-off. Contour farming also extends the wet season into the dry by maximising the water held in the soil and allowing any excess to be directed into a pond or dam downhill, where it can be stored for use in the dry season.

## What are the challenges?

Contour farming can be difficult and labour-intensive. It requires learning and implementing techniques for measuring contours and digging swales, which can be technically challenging. Additionally, resources such as seeds and other planting materials needed to help make use of the land can be hard to find at the market, which Lionel says is often inadequate.

Cover cropping can also be challenging, as it requires finding a suitable crop that fits into your rotation or developing a new rotation to take advantage of the benefits of the practice. This can also be labour- and time-intensive, as well as requiring planning and technical knowledge.

However, after these challenges are overcome, contour farming can give sustained, long-term benefits to your farm through increased soil fertility, water retention, land productivity and more.

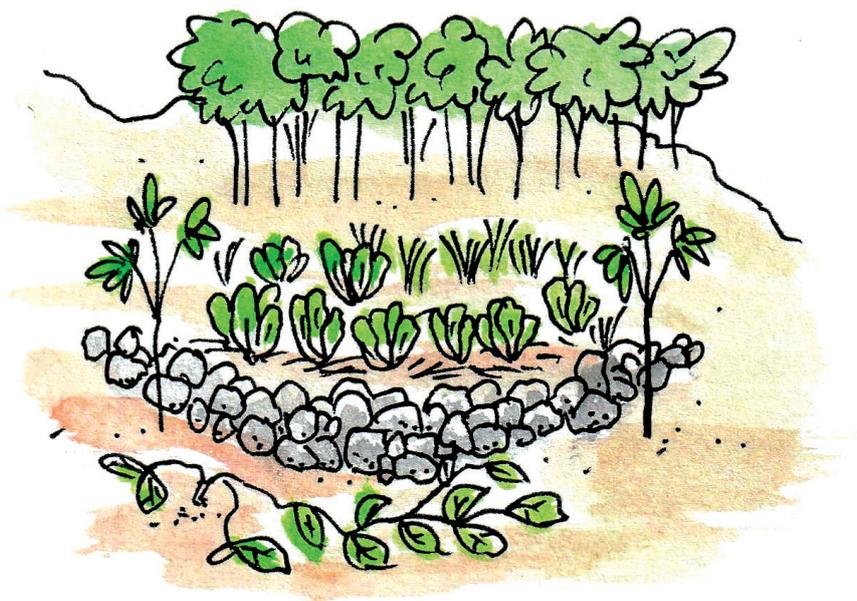
## How could this be scaled up/how could others get involved?

*“The application of this approach would be easy due to experience in Indigenous or traditional practices taught by great-grandparents on how they planted their crops in the past. Otherwise, other farmers would have applied the practice in their previous farmer field school training.”* — Lionel

Basic contour farming, where contours are measured and planting is done across the hillside, is relatively simple to expand into areas of garden or plantation. If terraces or swales are required to be built in steeper areas, this can be labour-intensive, but community members can get together to help each other out.

Vetiver grass, which is fast-growing and useful for stabilising soil between crops, can be easily separated and shared with neighbours.

Variations on contour farming, such as creating V or boomerang shaped swales, can be adapted to the site and can be used in smaller areas of a farm or in community gardens.



For further information on contour farming, refer to Live & Learn’s **Woakem Land Kam Up Gud Fala** guide.