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Efficient irrigation system
in the commercial demo
orchard at Rashingbee

Page 4



The Ministry's
Week

Page 6

Agriculture and Livelihood in Pemathang Gewog

Tashi Yangzom, PPD



Mrs. Zangmo and her friends harvesting the Appy rice

Pemathang gewog is located at an altitude of 600 to 1200 meters above sea level. The gewog has 15 villages with 301 households. The gewog consists of mainly wetland in terms of land use pattern. Paddy is the staple food of the gewog and it is widely cultivated in 588.56 acres of wetland. The gewog is well known for the local scented variety

of rice known as Khamtey. It is considered to be a primary source of cash income for many local farmers.

Mrs Tashi Zangmo is 33 years old, a mother of three and a diligent farmer in Pemathang gewog in Samdrupjongkhgar. Mrs. Zangmo has been living in pemathang since

her parents' resettlement. Her immediate family of nine owns around 3 acres of Wetland and 50 decimals of dryland. Currently, Mrs. Zangmo is the only one taking care of her family farm. Her husband is a machine operator with the FMCBL.

Cont. in page 2

**Cont. from page 1****Khamtey rice variety**

Mrs. Zangmo cultivates three different paddy varieties from which she had harvested almost 140 Kg of Appy rice recently and the Khamtey was just few weeks away from harvest. She also owns a small backyard farm for vegetable cultivation. She grows cabbage, garlic, onion, beans, and radish among others. Mrs. Zangmo grows vegetables only enough for consumption. She said “during summer we cannot sell our vegetable and during winter we cannot find vegetables for our own consumption”. Previously she also reared livestock but due to shortage of labor or helping hand she had to give up on her livestock.

Mrs. Zangmo hires machines to plough the field from Fmcl at a hiring charge of Nu. 2700 per day. She said that, the hiring of thrasher cost around 8000 or more per day so most of the villagers thrash it manually. The farmers

in Pemathang practice exchange of labor forces mostly among friends and family.

She said that the double cropping of paddy is feasible in Pemathang but due to water shortage, farmers are not able to practice it. She

said “It takes 9 days to reach the irrigation water to my field. They keep the irrigation water for one night and one day which is hardly enough for my paddy field. Therefore, as a measure, I usually store rain-water/ water-runoff for my paddy.” She recalled “before





Paddy field of Pemathang Gewog

two to three years ago, our paddy was all stunted, our fields cracked and weeds took up majority of our Paddy fields”

Pemathang gewog’s existing water source Warong-re is not able to meet both the agriculture and drinking water demands. The places with established irrigation facilities take around 9 or more days for an irrigation water rotation to reach an individual. While other irrigation facilities are seen in dilapidated state of distribution or the traditional channels are seen to have seepage losses. In some places like Warong Re, the existing water sources have dried up.

But the villagers are hopeful that the ongoing construction of Omshari Landmark Irrigation Project in Pemathang Gewog implemented through the Desuung National Service Program and Ministry of Agriculture and Livestock will solve these issues.





Efficient Irrigation systems in the commercial demo orchard at Rashingbee

Kuenga wangchuk, Dr TP, Pema Thinlay, Tshering Yangchen and Dema Yangzom; Automation Team



Agriculture today, faces a great challenge in coping with growing water scarcity and increasing demands for food production. Various initiatives have been made to increase the efficiency of agricultural irrigation systems. With the increased availability of the Internet of Things (IoT) and Information and Communication Technology (ICT), it is now possible to real-time monitor or control different processes of irrigation and water management in agriculture. The SMART irrigation system is basically using water-saving technologies such as a micro-irrigation system combined with different IoT-based technologies for automation.

The 5-acre commercial mango orchard at Rashingbee in Lhuentse Dzongkhag, located at an elevation of 850 masl was left without proper irrigation and manuring

since its establishment in the year 2005. Due to this, their production drastically decreased from their annual usual harvest earnings of an amount of Four hundred Thousand (Nu. 400,000) to only around Ninety Thousand (Nu. 90,000) in the last season.

With fund support from CARLEP-IFAD and Technical support from ARDC Wengkhav recently installed a solar-powered Smart irrigation or automation irrigation and fertigation system on cost sharing. This is done for the first time to promote an efficient irrigation system in the orchards. Similar types of models will be promoted in other commercial orchards in the East. The system has a separate storage tank for water and a fertilizer tank for fertigation and irrigation. The orchard is divided into three watering zones for uniform irrigation and fertigation.

The automation system, unlike in the protected structures, is connected to a rain sensor where the scheduled irrigation will not be running when there is rainfall of 6mm and above, indicating already enough water in the orchard, and will resume the irrigation schedule when the area is dry. With the installation of smart irrigation and fertigation, the beneficiary is expecting a good harvest this season. The total material cost for the 5-acre Mango orchard at Rashingbee comes to around Nu.1,16,401.

In order to ensure produces are marketed, the interested commercial farms will be market linked to Bhutan Agro through a contractual farming.

Orchards like this with some investments and market linkage will contribute towards commercialisation of farming in the region.

Leisure

TYPES OF DRYING MAIZE

SUN DRYING

- It is a popular method of drying grains where spread grain is exposed to direct sunlight until the desired grain moisture content is achieved. The good practices that have to be followed in sun drying are as follows:
1. Clean the drying surface properly before spreading the grain to prevent contamination with impurities.
 2. De-husked cobs should be spread on ground cover such as a plastic sheet or any other suitable material to prevent seepage moisture from the ground reaching the cobs.
 3. Start the drying operation in the morning to get maximum sunshine hours of the day.
 4. Spread the cobs as thinly as possible on the drying floor, but not more than 5 cm thick, to achieve faster.
 5. Grains absorb moisture during night time when the relative humidity of the air increases. In order to minimize this phenomenon, heap the cobs on the drying floor and cover the heaps with plastic sheet or any other protective material such as straw bags until the grains are spread on the following day. During sudden rains, heap the cobs or grains on the drying floor and cover the heaps with plastic sheet or any other moisture barrier.

SMOKING

The insect infestation is reduced when hung above the fire as the heat reduces the moisture content and the chemicals in smoke deters insect from laying eggs.

AIR DRYING

The maize cobs are hung along the roof of the house to expose it to air and hence the moisture content is minimized.

HARVESTING TIPS

The correct stage of maturity for harvesting of maize is:

1. When silks of ears have dried to a golden brown.
2. Kernels should be well filled & plump milk stage.
3. 90 – 115 days after planting.
4. Cobs should be at least 5” long.
5. 20 days after the appearance of the first silk strands.

JOKES



What do you call it when it rains ducks and chickens?

Fowl weather

Did you know?

Corn comes in full range of shades enough to create a rainbow. One of the amazing varieties is called Calico corn and it looks like a multicoloured gem with red, yellow and brown kernels.

Please submit your articles for the RNR-Newsletter at
communication@moaf.gov.bt



The Ministry's week

The workshop on Seeds Without Borders; a regional cooperation for seed sharing concludes today



The Ministry of Agriculture and Forests in collaboration with the International Rice Research Institute (IRRI) successfully organized a two days' workshop on "Seeds Without Borders" from 22-23 November in Thimphu.

During the workshop, nine countries from Asia and the Pacific signed an agreement to strengthen the regions seed sector. Seeds Without Borders is

a regional seed policy agreement that speeds up the distribution of modern rice varieties across countries in Asia, particularly in South and Southeast Asia.

The opening ceremony was graced by His Excellency Lyonpo Yeshey Penjor, Minister, Ministry of Agriculture and Forests (MoAF); Hon'ble Secretary, Dasho Thinley Namgyel, MoAF; Hon'ble Director General Jean Balie', IRRI.

World Food Day 2022

This year the world food day 2022 was celebrated with a modest ceremony at the Ministry of Agriculture and Forests in Thimphu with support from various stakeholders like FAO, WFP and JICA among other international development partners. The event was graced by Dasho Thinley Namgyel, Hon'ble Secretary, Ministry of Agriculture and Forests.

The ceremony at the MoAF conference hall began with an offering of a butter lamp and a zhabten. This year's global theme was "Better production, better nutrition, better environment and a better life". As a part of the celebrations, two video documentaries on urban agriculture in Bhutan and School feeding programme in Bhutan was launched.



His Excellency Sanam Lyonpo visits eight Gewogs of Zhemgang Dzongkhag



The Hon'ble Sanam Lyonpo was on tour from 8-16 Jan, 2023 at Zhemgang Dzongkhag. HSL visited at all Chewog of Eight Gewog under Zhemgang Dzongkhag. During the meeting Lyonpo met with farmers and discussed on various issues and problem faced by public like farm road construction and renovation, Marketing

of products, Chain-link fencing/ electric fencing, Land management & Development, Farm machinery, Improvement of RNR productions, improvement of supply of seed and seedling for both vegetables & fruits /cash crops and poultry feeds. HSL also addressed on other issued faced by farmers like drinking water shortage, school, land related issue among others.

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