Kenyan farmers reject foreign potato seed varieties

Peter Kamau | Kenyan potato farmers have rejected foreign imported potato seed in preference for local varieties. Interviews with farmers across the country show that foreign potato seed brought into the country cannot compete with local varieties, which farmers say are compatible with local weather conditions and market demand.

Demand low for new foreign varieties

The major complaint against foreign potato seed varieties is that they require a high level of management. They also take long to break dormancy while others are prone to diseases such as early and late blight. The potatoes cannot be sold in the open air markets, a major market outlet for potatoes in Kenya since they turn green when exposed to the sun.

Farmers have asked the government to resume its basic seed breeding programme to enable them get local certified seeds. The demand for trials at the Kisima farm have been rejected by farmers.

“Demand high for local varieties

The Executive Officer at the Kisima Foundation Mr. Nteere Gitonga says most of the varieties brought by foreign companies for trials at the Kisima farm have been rejected by farmers.

“We have grown some of the foreign varieties here such as Panamera, Voyager, Challenger and Taurus varieties, but the problem is that these varieties cannot be sold in the open air market, which is the way farmers sell their potatoes in Kenya. The potatoes turn green within a few days when exposed to sunlight making them unsuitable for consumption,”

Mr. Gitonga says that during the last season in October 2019, Kisima farm sold 3000 tonnes of certified Shangi variety within 3 days owing to the high demand for the variety across the country. Other varieties that are in demand include Sherehekea and Dutch Robin which are mainly sold to farmers in Meru and Bomet. Dutch Robin is an improved local variety that farmers in Bomet grow under contract with factories in Nairobi for processing into crisps.

One of the major problems facing maize farmers is that most of these farmers are unable to store their maize until prices become favourable. Some lack good storage facilities while the majority are forced to sell in order to meet various financial commitments such as fees, medical bills and buying inputs in preparation for replanting.

Farmers who managed to store their maize until the months of May and June made good returns when the prices shot up to Ksh3,500 per 90kg bag at the farmgate. This shows that farmers who manage to store their maize can sell at good prices when maize supply diminishes. As for milk, prices fell to as low as Ksh 17 a litre!

The world over, prices for agricultural products fluctuate on a daily basis.

Farmers ought to farm smart. This means making the right choice of the crops to grow be it cereals, vegetables or fruits. It involves conducting market surveys to find out which crops to grow and when to plant them to ensure the commodities reach the market at a favourable time.

Climate change impact continues to affect farmers mostly characterised by unpredictable weather patterns, droughts and destructive floods as recently witnessed during the November - December rainfall season. Farmers need to take up climate adaptation measures to minimize losses.

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Government unable to provide potato seed to farmers

Potato seed production and multiplication centres are infested with PCN. Pest and diseases such as bacterial wilt will make it difficult to produce clean seeds for farmers.

Peter Kamau and Faith Bosire | Mr. Samuel Tanui is a potato grower in the Lelan Ward in Elgeyo Marakwet County. He has been growing potatoes in his 5-acre farm for the last 20 years. Before, he used to harvest between 70-100 bags of potatoes from an acre. Not anymore, “today I get between 20-25 bags from one acre despite using a lot of fertilizer and farmyard manure to improve fertility in my farm,” he says.

Mr. Tanui is not alone; his neighbour Mr. Kenneth Kada is facing the same problem in potato production. Every season, Mr. Kada has to leave part of his potato harvest to use as seed in the next season due to lack of certified seed, a reason his potato harvest has reduced drastically as diseases and pests increase on his farm.

Farmers spread diseases and pests

“I am forced to open up new potato growing areas in my farm every year in an attempt to improve my potato yields but even this is no longer working because my potato harvest keeps going down every year. I have now given up growing potatoes to concentrate on rearing dairy cows despite the dwindling milk prices,” he adds.

The outcry by farmers is the same in Kaptalamwa, Kacherop and Koisugur potato growing areas of Elgeyo Marakwet County.

No source of clean seed

For the last three months, The Organic Farmer has visited potato growing areas in Nyandarua, Laikipia, Nakuru, Narok and Elgeyo Marakwet. In all the counties more than 90 per cent of the farmers interviewed have been forced to recycle their own potatoes as seed due to lack of certified seed.

Only a few farmers in Nyandarua, Nakuru and Laikipia have managed to buy certified seed mainly from the Agricultural Development Corporation (ADC) and a few private seed producers who are unable to meet the huge demand for certified potato seed in the country.

Shangi has huge market demand

An official from ADC who declined to be named as he is not authorized to talk on behalf of the corporation, says that the main problem facing the potato sub-sector in the country is the preference by the majority of potato farmers to go for only one potato variety—Shangi.

He says the preference of this variety is due to the huge market demand it enjoys across the country. The variety cooks fast and can be used to make chips, crisps, good mashing quality and taste. Another quality that farmers find beneficial in the variety is its ability to break dormancy within a short period, enabling them to plant it up to 3 times in a year. No other potato variety in the country meets these qualities.

Developed varieties cannot be multiplied

The Kenya Agricultural and Livestock Research Organisation (KALRO) has developed more than 35 potato varieties. Some of the most popular varieties from KALRO include Tigoni, Kenya Mpya, Kenya Karibu, Dutch Robijn and Shereheke.

When KALRO realised the popularity of the shangi variety among farmers, it started cleaning it with the help of the International Potato Centre (CIP) and had it certified by the Kenya Plant Health Inspectorate Service (KEPHIS) to enable potato farmers to get clean seed. The shangi variety is now officially recognised as a potato variety that can be multiplied like any other variety in the country.

KALRO no longer producing seeds

However KALRO can no longer produce these varieties because its main basic seed production unit in Tigoni has been condemned by KEPHIS. This is after it was found to have the Potato Cyst Nematode (PCN) a devastating potato pest that can remain in the soil for up to 30 years. The pest can also wipe out an entire potato crop. Importation of potatoes without following the right phytosanitary protocols (procedures) has been blamed for entry of the pest into the country.

Diseases and pests spreading

Apart from lack of certified seeds and the invasion of the PCN pest, which many potato growers do not know about, many farmers are also grappling with bacterial wilt and viral diseases. These combined make potato production a daunting venture. As a result, many farmers have abandoned potato production or reduced the cultivated area to cut down on losses.

Counties lack capacity to help farmers

County governments in most of the affected regions have attempted various approaches such as building cold storage facilities, introducing foreign seed varieties and even training farmers on the best potato production methods, with little success. Even worse, farmers continue to recycle Shangi, further spreading diseases and pests such as the devastating PCN as they open up new areas for potato production.

Lack of funding

The government has identified potatoes as the second most important food crop in the country and made it part of President Kenyatta’s Big Four Agenda on food security. But no funding has been allocated for the development of the crop as at now and all promises so far remain on paper with nothing to show on the ground.

For more information on potato seed https://www.infonet-biovision.org/PlantHealth/Crops/Potato-Seed-Production

The Organic Farmer is an independent magazine produced monthly for the East African farming community. It promotes organic farming and supports discussions on all aspects of sustainable development.

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Use natural plant extracts to protect your crop against pests

Farmers need to control pests and diseases using less costly methods such as the use of plant extracts and even natural biopesticide products in the market to make their food safe for consumption.

Beritha Mutune | The prolonged rains have no doubt been a blessing to many farmers who took the advantage of the rains to grow various crops. After the end of the rains the meteorological department says a severe drought will follow. This will increase pests that destroy crops, causing great damage to crops. It is important to know how to protect your crops and spending less time and money fighting pests with insecticides and other toxic products.

Early pest detection helps the farmer to assess the situation and plan the next step to eradicate it. Monitoring involves detection of the pest early, crops affected and type of pest damage.

Some of the most common pests include the following:
- Aphids, whiteflies, thrips, bean flies, fall armyworm, stem borers, fruit fly and leaf miners. Farmers can control these pests through prevention, non-toxic home-made remedies, use of other industrial substances, use of pheromone baited taps, use of natural enemies which are friends of the farmers, and other toxic products.

Prevention: Farmers need to know that the easiest way to prevent insects’ damage in your farm is by creating unfavourable conditions for them to thrive. A healthy farm is the best defence. This can be done by:
- Rogue weak plants: Weak plants may already be infected. If not, they will attract predators. Pull the plant and dispose them away from the farm area.
- Build healthy, organic soil: Using natural composting methods, mulching, and adding compost manure to the soil is the best way to develop strong and healthy plants.
- Minimize pest habitat: Clear your farm area of debris and weeds, which are breeding places for insects.
- Use clean mulch: Use clean mulch to prevent diseases.
- Interplant and rotate crops: Insect pests are often plant specific. When plantings are mixed, pests are less likely to spread throughout a crop. Rotating crops each year is a common method to avoid re-infestation of pests.
- Keep foliage dry: It is highly recommended to water your plants early in the morning so that they can be dry for the most part of the day. Wet foliage encourages insect and fungal damage to your plants.
- Disinfect working tools: If a farmer has been working with infested plants, he is advised to clean the tools before moving on to other farm areas. This will reduce the spread of invading insects.
- Use of pest resistant plant varieties: Some plants and plant varieties are more prone to pests than others. Preventing pests in your farm is sometimes as simple as choosing pest-resistant plant varieties.
- Use safe home-made remedies: Home-made remedies are inexpensive, and the farmer is sure of what they are applying to the crops. Many homemade remedies have been used with good results to control harmful insects. They usually involve harmful (but non-toxic) ingredients such as garlic, neem, cinnamon and chilies. These are diluted in water and blended ready to be sprayed on the plants.
- Industrial products: Some of the products farmers can use include: Bar soap, cooking oil and sugar. These are also blended and diluted with water to be sprayed on plants.

For more information on plant extracts https://www.infonet-biovision.org/natural_pest_control

How to make 20 litres of Fermented Plant Extracts (FPE) to control pests

Ingredients
- 1 litre of molasses
- 1 litre EM1
- 4kg of different plants with biopesticide properties e.g apple, neem, African marigold, Tithonia, comfrey, garlic and chilli.
- A 20-litre jerrycan (molasses and EM1 is available in many agrovet shops).

Preparation
1. Mix the molasses and EM1 with 5 litres of water.
2. Chop up the vegetation into small pieces the way you chop vegetables and add into the jerrycan.
3. Fill the jerry can to the brim with water and seal with a lid to keep it airtight for 14 days.

Use
After 14 days, filter the solution, dilute it at a ratio of 1 litre FPE to 100 litre of water (1:100) and use a spray. If you use a knapsack sprayer, ensure to pass the extract through a piece of clean cloth (sieve) to stop the plant particles from blocking the nozzles of the sprayer. Add foam from bar soap to act as a sticker or use ordinary stickers bought from shops. Spray at least three times every week since natural pesticides do not work in the same way as pesticides.
Diversify and improve your income by growing apples

Apples are popular fruits in Kenya, yet few farmers have knowledge on how to grow them. This is why most apples consumed in the country are imported from South Africa.

Audrey Opondo | “Apple fruits are becoming popular in Kenya’s urban areas, for their high nutritional value. However, almost 90 per cent of apples consumed in the country are imported because very few farmers know how to grow this nutritious fruit. With adequate information, farmers can diversify their source of income by venturing in apple farming.

Apples are rich in vitamin C, beta-carotene, B-complex vitamins, dietary fibre and minerals such as potassium, phosphorus and calcium; thus, the saying, ‘an apple a day keeps the doctor away.’ Apples also help in reducing weight because of their fibre. They can be eaten fresh or cooked depending on the variety.

Varieties
There are many varieties, including winter banana, Rome beauty, Sharp Early, Braeburn, Fuji, Gala, Blenheim Orange, Anna and Jonathan.

Fuji, Gala and Braeburn have been proven to do well in Kenya. They are high yielders and produce quality fruits in terms of size, colour and taste. The following are their characteristics:

**Fuji**
- Medium-sized apple.
- Slightly sweeter than other varieties.
- Predominantly red/dull-pink in colour over a greeny/yellow base.
- Texture is firm, crispy and juicy with extremely dense flesh best for fresh consumption due to its high sugar content.

**Gala**
- Most widely grown variety in the world.
- Grown in both temperate and tropical regions.
- Has a sweet taste, and is crispy with a firm texture.
- Resistant to bruising, softening and other defects.
- Can be stored for up to six months.

Fruit picking can start two years after planting.

**Braeburn**
- Medium to large in size.
- Growers prefer it due to its ability to keep fresh when chilled.
- Fruit is firm with a red/orange vertical streaky appearance on a yellow/green background.
- Has a sweet flavor.
- Heavy yielder.

Requirements for growing apples

**Rainfall**
Annual rainfall of 1000mm per annum is best for production. Inadequate rainfall can be supplemented with irrigation.

**Temperatures**
Apples require low temperature of below 15°C for dormancy breaking and above 22°C during fruit maturity.

**Altitude**
Apples are grown in high altitude areas at 2000-3000m above sea level.

**Soils**
Apples do well in properly aerated well-drained soils with a pH between 5.5 (sandy soils) and 6.5 (heavy clay).

**Planting guidelines**
- July and August is the best time to plant apples when they are dormant.
- Plant the seedlings in holes of 60x60x60cm.
- Spacing should be between 3x3m to 4x4m depending on the variety.
- It is beneficial to plant at least two varieties since most of them are cross-pollinated.
- A newly planted farm can be intercropped with low growing crops.
- Do not shade any part of tree especially the lower parts.
- Having bee hives is beneficial since bees are important pollinators.

Pruning
For the tree to have a good structure and form, pruning must be done in the first 2-3 years after planting.

Select 3-4 strong branches around the central leader and tip them off during dormancy to stimulate secondary branching.

**Dormancy breaking in apples**
Dormancy in apples occurs in the month of July and August. To break dormancy, the farmer needs to defoliate the apple tree 4 weeks after harvesting to break the lateral buds and make them blossom (grow).

**Fruit thinning**
The fruits should be evenly spaced, about 2-3 trees per spur to avoid malformation due to crowding. This is brought about by a heavy fruit set.

**Harvesting**
The fruits are harvested 4-6 months after fruit set depending on the variety. Handle the fruits carefully and retain a small stalk attachment.

**Storage**
A cool, dry and rat-proof place for up to 4-8 months would be most ideal. A refrigerated store can store the fruits for much longer.

**Yields**
If the trees are well managed, a farmer can expect about 250-300 fruits per tree.
Reduce chemicals in food production to improve health

It is difficult to tell if the food we buy is safe for human consumption due to the overuse of chemicals in food production. Farmers should use natural methods of food production to improve their health and that of consumers.

Mary Mutisya | Consciousness over how the food we eat has produced is heightening with increasing cases of non-communicable diseases such as diabetes, cancer and arthritis.

The situation is getting out of hand prompting consumers to rethink their choice of food depending on how it is produced or processed.

Use of chemicals from land cultivation, crop growing/livestock rearing all the way to the farm produce is a major concern. This is because there exists a link between soil, plant, and food contamination. The situation is getting out of hand, especially with increasing cases of non-communicable diseases such as asthma, diabetes, and arthritis.

The farm produce is a major source of nutrition and assurance of livelihood for many people in the rural areas. However, the food may carry harmful chemicals that can cause harm to the health of the consumer, especially when consumed in large amounts.

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High exposure to chemicals

The level of harm from exposure to pesticides is dose related, meaning that the more one consumes foods containing the chemicals, the greater the potential risk of poisoning. A major challenge facing the food industry is coming up with a way to balance a reliable, high-quality food supply with the need to protect the consumer from unnecessary exposure to chemicals.

It’s difficult to tell safe chemicals

Maximum Residue Limits (MRLs) for safe human consumption are often encouraged to reduce high levels of chemicals in the crops. However, past experience has shown that, sometimes, a pesticide that is thought to be safe for human consumption has undesirable effects, which may not be indicated on the labels. These can harm people and animals through environmental pollution and food contamination.

Effects of pesticides on human health

Allergy: Allergies are abnormal reactions of the body towards any harmful substance. These reactions can cause itching, rashes, or hot red spots. In severe cases, effects on internal organs can trigger asthma, shortness of breath, or a running nose.

Digestive problem: Not all chemicals are soluble in water. Some pesticide residues remain on plants and when they are consumed, the victims experience symptoms such as nausea, pain in the bowel and diarrhea.

For this reason, people need to thoroughly clean any vegetables or fruits that come from non-organic sources. Even though most people do not show immediate symptoms, accumulation can take place leading to severe illnesses later in life.

Respiratory diseases: These are common among factory workers and farmers who regularly inhale chemicals that affect the respiratory tract causing terminal illnesses such as lung cancer and asthma.

Symptoms for such illnesses include: difficulty during breathing, infected trachea, sore throat and in worse cases chronic lung problems. Factory workers and farmers who are regularly exposed to these chemicals should therefore wear masks and protective clothing whenever they handle them.

Internal organ damage: Internal organs such as heart, kidney and lungs, are the most vital parts of the human body which sustain life. Thus, if chemicals endanger any of them, malfunctions that can lead to death occur.

Cancer: Cancer is one of the deadliest diseases caused by use of chemicals. Several bio pollutants as well as insoluble chemicals such as cadmium, arsenic, mercury, and some pesticides contain cancer-causing agents (carcinogens). These chemicals once ingested in the body, they block the growth of new cells and in their place, malignant (abnormal) cells are produced. The cell mutations can cause lung, breast, throat and many other cancers that affect vital organs within the human body.

Way Forward

Despite the increase in population and the consequent need to increase food production, there are alternative approaches to cater for this need, other than over reliance on chemicals.

Farmers should go organic

Adoption of organic or natural methods of pest and disease control in farming is a viable solution as it is tried and tested.

Hygiene is also key when handling food especially fruits and vegetables as cleaning them thoroughly before consumption can help get rid of excess chemicals. The government should also encourage farmers to embrace ecologically sustainable methods of farming.

Use crop residue to prepare fodder for dry season

A lot of fodder is wasted after harvest when farmers release their animals into the fields after harvest. Crop residue can be collected and converted into silage while fodder grasses can be made into hay for feeding during the dry season.

**Purity Khandasi** | The common saying “make hay while the sun shines” has different meaning depending on context, but to farmers, it applies literally. Every farmer knows the importance of preparing fodder when they have adequate material such as grasses or any good quality crop residue.

Due to the changing climate, it is no longer possible for farmers to predict when they will have rains next. It is important that farmers plan their fodder requirements at the beginning of the year so that their animals will always have something to eat even when the rains delay or fail.

**Prepare when still fresh**

Farmers can conserve adequate fodder especially after harvest when it is still fresh either in form of silage, or hay. To these, farmers can add gristed maize, sorghum or barley mixed with grasses at the time of feeding.

Livestock in most parts of the country are either emaciated or even die due to lack of adequate fodder and even water during the dry season. But through proper planning it is easy to overcome these challenges. Early preparation and storage of hay or silage is the one method they can use to ensure the animals have enough to eat. During the wet season a lot of fodder is wasted in many farms because farmers do not store fodder correctly and at the right time.

**Difference between hay and silage**

Hay is grass that has been cut and dried to be used as animal fodder. Hay making is the process of cutting and drying the stubble. Haymaking turns green, perishable, forage into a product that can be safely stored and easily transported without danger of spoilage, while keeping losses of dry matter and nutrients to a minimum.

**When to harvest**

The perfect time for cutting hay from crops is when they are flowering when the plant is full of nutrients. The stems have less nutrients than the leaves so, it is advisable for farmers to have more of the leafy parts of a crop than the stems.

**How to prepare hay**

After hay has been cut and dried it is usually gathered in bales and bundles.

After preparation, one should spread the hay under a shade for two to three days depending on the weather and let it wilt.

Tools used in hay making include machete, hoe, and sisal twines. The hay is cut in equal measurements and laid out in rows to dry. Select a ground that is well-drained and dry and should be near a grass field. Hay should not be over dried as it may start to ferment and become a fire hazard.

**Feed nutrients**

Animal feed should contain various groups of nutrients and the composition depends on the type of animal that is being fed; proteins help to build the animal’s body and its maintenance, carbohydrates provide energy while minerals help in biological regulation and growth, vitamins regulate biological processes and provide nutrients. Animal fodder should contain all these nutrients.

**Storage**

When hay is prepared and ready, it can be stored for many years. Hay should be stored in a dry environment as it is dry and moist environment may destroy it. Hay can be baled and stored under cover or can also be stored by creating hay stacks. These may be created in a field near the source, or close to where the hay will be required later in the year. Stacks may be covered by plastic sheets to keep out rain and prevent from exposure to excessive sun. The surface layer of a stack may also be “thatched”, in the same manner as a thatched roof to a house. It can be stored in pallet boxes as hay stacks.

**Conservation by use of polythene bags**

Use of polythene bags in conservation is the most suitable method for small-scale farmers. Place forage mixed with molasses into polythene bags and compact as much as possible. Please note that every time you open the silage bag, expel the air from the bag and then tie it tightly to avoid spoilage.

**Importance**

The goal of haymaking is to produce a stable, high-quality animal feed with minimum expenditure. Hay making is one of the ways that farmers can use in having pasture for their livestock when the dry season approaches.

A farmer can also make lots of stacks of hay not only for their livestock but also for sale to other farmers, which makes it a profitable venture.

For more information on fodder production see https://www.infonet-biovision.org/AnimalHealth/Fodder-production and also https://www.infonet-biovision.org/AnimalHealth/Animal-nutrition-and-feed-rations

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**Baling hay at home**

*Source: KALRO*
Making your own chicken feeds to reduce costs

A farmer wrote to us worried that the cost of buying ready-made feeds for his chickens was becoming too high. He wanted to know if making his own feeds will reduce the cost. He also wanted to know how to make these feeds. It is true indeed that making one’s own feeds reduces the overall cost for feeds especially if the farmer is able to obtain the raw ingredients at a cheap price. If a farmer decides to make their own feeds, they should be very careful when buying the raw ingredients. These ingredients should be of good quality.

If the farmer uses ingredients of poor quality or those that are contaminated, they will negatively affect the health of his chickens leading to huge losses. After acquiring the raw ingredients and mixing them, the farmer is advised to first isolate a few chickens and feed them using his new feeds on a trial basis then observe the health and growth of the chicken to make sure that the ratios are correct before feeding it to the whole flock. When mixing the raw ingredients, bear in mind that chickens have different nutritional requirements at different stages of development. For instance, layers require more calcium in the diet for eggshell formation. It is advisable to make feeds that will last for one month and no more. This ensures that the chickens feed on fresh feeds throughout the month. Feeds that last beyond one month may start to deteriorate lowering the quality of the feeds and this can negatively affect your chickens. It is wrong to use rotten maize (maize) as it may contain aflatoxins which are harmful to chickens. To make feed stay longer, farmers can use stabilisers.

The most common raw ingredients include whole maize, maize germ, wheat bran, wheat pollard, cotton seed cake, soya beans, sunflower or fishmeal (omea). Farmers should also add various additives to cater for vitamins, minerals and micronutrients. We have tried to compile feed formulations for every chicken growth stage. The simple formula can be used for hybrid layers.

**Chick mash (1 to 4 weeks)**

A chick feeds on a minimum of 60g on a single day. Growing chicks require feeds with Digestive Crude Protein (DCP) of between 18 to 20%. The following formula can be used to make 70kg worth of chick mash.

**Ingredients**

- 31.5kg of whole maize
- 9.1kg of wheat bran
- 7.0kg of wheat pollard
- 16.8kg of sunflower (or 16.8kg of linseed)
- 1.5kg of fishmeal
- 1.75kg of lime
- 30g of salt
- 20g of premix
- Amino acids
- 70g of tryptophan
- 3.0g of lysine
- 10g of methionine
- 70g of Threonine
- 50g of enzymes
- 60g of coccidiostat
- 50g of toxin binder

**Growers’ mash (4 to 8 weeks)**

Chickens at this stage require feeds with 16 to 18% protein content for growth and preparation for laying eggs. The following formula can be used to make 70kg feeds.

**Ingredients**

- 10kg of whole maize
- 17kg of maize germ
- 13kg of wheat pollard
- 10kg wheat bran
- 6kg of cotton seed cake
- 5kg of sunflower cake
- 3.4kg of soya meal
- 2.07kg of lime
- 700g of bone meal

3kg of fishmeal
14g of salt
1g of coccidiostat
18g of Pre-mix
1g of zinc bacitracin
7g of mycotoxin binder

**Layers’ mash (8 weeks and above)**

Feeds for layers chicken should contain a 16 to 18% of Digestible Crude Protein and enough calcium derived from lime for the formation of eggshells. An egg-laying chicken feeds on 130-140g on a single day.

**Ingredients for making 70kg bag of layers’ mash.**

- 34kg of whole maize
- 12kg of soya
- 8kg of fishmeal
- 10kg of maize bran, rice germ or wheat bran
- 6kg of lime
- 175g premix
- 70g lysine
- 35g methionine
- 70g threonine
- 35g tryptophan
- 50g toxin binder.

Kindly note that fishmeal and bonemeal as chicken feed in organic farming is not allowed.

*Answer by Elkanah Isaboke*

*Isaboke writes on agricultural issues- He holds a diploma in Organic Agriculture.*

[For more information on chicken production](https://www.infonet-biovision.org/AnimalHealth/Chicken)

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My birds have scaly legs and scratch themselves constantly

My chickens have grown white scaly skin in the legs which look unsightly. Can you advise what problem could be and what I can do to prevent it?

Scaly legs in chickens is a problem of hygiene in the chicken shed which encourages mites to infest the shed and find their way into the birds’ body. These mites cause constant irritation as they suck blood causing development of scales in the legs as they burrow under the skin to parasitise the birds. A chicken shed should always be kept clean by sweeping every morning to remove the droppings and feed leftovers to create a conducive and clean environment for the birds to stay.

After sweeping, sprinkle ash and water on the floor and the walls. These chokes and kill the mites. To treat the affected birds; apply Vaseline or Ectomine® powder in the affected areas daily until the mites are eliminated. It is also advised to move the chicken to a new house to cut down the life cycle of mites in the old housing. This should be done for at least 6 months.

The soils where the birds take their chicks should also be sprinkled with ash, diatomite or swept with leaves of African marigold. All new birds should also be isolated as they may carry mites.

*Answer by Peter Kamau*
You can make nutritious porridge with baobab juice

Musdalafa Lyaga | Miriam Kuvuna Mvoaka from Kilifi county asks TOF Radio; “Here in Kilifi we have plenty of Baobab trees growing in the wild and the fruits are in abundance. How best can we utilize these fruits?”

All over Africa, rural families enjoy a meal of maize flour porridge because it is tasty and easy to prepare. Taking porridge every morning has many health benefits including boosting energy and improving digestion.

In many African countries, porridge is also used to wean infants from mother’s breast milk. Even though porridge already has good nutritional properties like carbohydrates which provide slow-releasing energy, it can be enriched by adding more ingredients.

**Baobab juice enriches porridge**

Porridge contains mainly starch which is not enough for the nutritional needs of the farmer’s families. Women from arid, semi-arid and dry areas can use baobab juice to enrich their porridge with minerals and vitamins.

**Baobab is super food**

The fruit pulp of the baobab tree, which grows naturally throughout the drier parts of Sub-Saharan Africa, is of high nutritional value. According to Emily Chai Chivatsi, who has been trained on enriching various foods like porridge, sauces, bread, mandazi (buns) and making juice using baobab, the fruits contain high levels of minerals such as calcium, iron and magnesium as well as vitamin C in comparison to other foods. Furthermore, it has high fibre content and is beneficial for human health as it reduces the risk of diseases.

If used as a food ingredient, baobab juice can greatly improve nutrition and help combat micronutrient deficiencies.

**Select good fruits**

“Baobab juice is the basic ingredient for enriching the porridge, so you have to be careful and select good quality fruits for making the juice,” says Ms. Chivatsi. “I choose baobab fruit that are mature and free from dirt. Poor quality fruits can affect both the taste and nutritional value of the porridge,” she adds further saying that it is easy to make it at home, as most of the ingredients you need are right in your kitchen.

**Ingredients**

To make 4 cups of enriched porridge you will need 70g of maize flour, 1 cup of baobab juice, 1 cup of milk and 4 table spoonfuls of sugar. Before you start making baobab enriched porridge, make sure that everything is as clean as possible, so that the porridge will be safe for your family.

1. First, clean the kitchen utensils. Then wash your hands with soap and clean water.
2. Start by putting a clean pot on the fire and measure four cups of water.
3. Put the 4 cups of maize flour in the cold water and stir to dissolve the flour. Keep stirring to avoid lumps.
4. Add a little bit of water if the mixture is too thick. Continue stirring for 7-10 minutes.
5. Add milk and sugar stirring till dissolved. After a few minutes take the pot off the fire, wait for it to cool. As your porridge cools, you can start preparing baobab juice.
6. It is important to first wash your hands with clean water and soap before touching the fruits.
7. Pour water into a cup half-filled with baobab fruits and squeeze gently.
8. Now you can sieve the mixture, which is ready for addition to your porridge. Only add the baobab juice once the porridge has cooled. The vitamin C contained in baobab can easily be destroyed through heat, so only add it as the last step, once the porridge has sufficiently cooled.
9. Let the porridge stand for a few more minutes before serving.

Nutritious and tasty enriched porridge is easy to prepare at home and, will be enjoyed by your whole family, and they will love it and be happy and more productive both at the farm and in school.

For additional reading: https://www.infonet-biovision.org/EnvironmentalHealth/Trees/Baobab

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**Radio Maisha frequencies for our TOFRadio programmes**

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**Extracting pulp for making the baobab juice.**

A pregnant woman in Kilifi county enjoying enriched porridge.