

**NATIONAL NUTRITION WEEK 2016:
“Love your beans – eat dry beans, peas and lentils!”**

August 2016

1. INTRODUCTION

This serves as a background document highlighting the concept and supportive messages to be used throughout National Nutrition Week (NNW) 2016. It can be used in conjunction with the ‘*Questions and Answers document*’ and ‘*Social Media kit*’.

The objective of this document is to outline the key messages to be communicated and statistics to be used; in order to ensure consistency in communication by all involved with National Nutrition Week 2016.

2. GUIDELINES FOR USE OF NATIONAL NUTRITION WEEK 2016 MESSAGE

The target group for the **National Nutrition Week 2016: “Love your beans – eat dry beans, peas and lentils!”** campaign, are consumers in general, reached via interpersonal communication and small, large and social media. The NNW 2016 theme and messages are in line with the international theme from the Food and Agriculture Organization of the United Nations: ‘*2016 International Year of Pulses: Nutritious Seeds for a Sustainable Future*¹’.

NNW 2016 messages will be communicated by the Department of Health, other stakeholders and through targeted publications and websites.

The message and supporting information must remain consistent as per this document and associated Questions and Answers (Q&A). They may be adapted to meet the needs of the target audience.

- The overall message should be used in the format stated, with the same wording to avoid mixed messages and confusion.

¹ <http://www.fao.org/pulses-2016/en/>
<http://iyp2016.org/>

- The statistics given should be the statistics used in this document in order to avoid confusion or too many messages.
- Messages may only be used for generic health promotion and may not be used to promote any specific brands.

3. **RATIONALE FOR THE NNW 2016 THEME: “LOVE YOUR BEANS – EAT DRY BEANS, PEAS AND LENTILS!”**

- Pulses are part of the legume family. Legumes include alfalfa, clover, lupin, green beans, peas, peanuts, soya beans, dry beans, broad beans, chickpeas and lentils². The term “pulses” is limited to crops harvested solely for the dry seed. Dried beans, lentils and peas are among the most commonly known and consumed types of pulses³.
- Pulses have been an essential part of the human diet for thousands of years. Their nutritional benefits are often greatly underestimated. In some cultures pulses have a stigma of being a ‘poor man’s food’ and are rejected in favour of meat, once people can afford meat. Other reasons that they are not commonly eaten is that some people complain that they cause flatulence, that they take too long to cook or that they do not know how to cook and use them for family meals.
- The United Nations has declared 2016 the International Year of Pulses, which aims to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition, specifically for the following reasons⁴:
 - Pulses contribute to food security at all levels. They can be stored for long periods without losing their nutritional value and the proportion food waste at the consumption stage due to spoilage is very low.
 - Pulses have a high nutritional value. They are a critical source of plant-based proteins, fibre, folic acid, slowly digested starch and other essential nutrients.
 - Eating pulses regularly has important health benefits. Their consumption is recommended for preventing and managing non-communicable diseases and obesity.
 - Pulses foster sustainable agriculture and contribute to climate change mitigation. Their nitrogen-fixing qualities can improve soil fertility, produce a smaller carbon footprint, and they are a water-efficient source of protein.

(See Annexure I for facts on the nutritional and health benefit of legumes)

² List of pulses or grain legumes and their various names. Crops review available from: <http://www.cropsreview.com/grain-legumes.html>

³ Definition and classification of commodities: pulses and derived products. Food and Agriculture Organisation of the United Nations 1994. Available from: <http://www.fao.org/waicent/faoinfo/economic/faodef/fdef04e.htm>

⁴ IYP leaflet. Food and Agriculture organisation of the United Nations. Available from: <http://www.fao.org/pulses-2016/communications-toolkit/promotional-material/en/>
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- The South African theme for NNW 2016 is in line with the 2016 *'International Year of Pulses: Nutritious Seeds for a Sustainable Future'* theme and is also reinforcing the message which promotes consumption of legumes: *"Eat dry beans, split-peas, lentils and soya regularly"* as an integral part of the South African Food-based Dietary Guidelines (FBDGs)⁵ - also known as the Guidelines for Healthy Eating - See *Annexure II*).

The theme for NNW 2016 therefore focuses on pulses and soya.

4. SUPPORTIVE MESSAGES

The following supportive messages are to be used with the key message: **"Love your beans – eat beans, peas and lentils!"**:

- Eat dry beans, split-peas, lentils and soya regularly
- Eating dry beans, peas and lentils regularly contribute to better health
- Dry beans, peas, lentils and soya can be used in many different dishes
- Don't let concerns about being bloated stop you from eating dry beans, peas and lentils; rather take steps to prevent this from happening.
- Before cooking, soak dry beans overnight in plenty of cold water.
- Dry beans, and to a lesser extent - peas and lentils, should be cooked thoroughly and drained well before serving
- Get the most out of dry beans, peas and lentils – store them properly

4.1 'EAT DRY BEANS, SPLIT-PEAS, LENTILS AND SOYA REGULARLY'

- The South African Guideline for Healthy Eating on legumes is: *"Eat dry beans, split-peas, lentils and soya regularly"* (See *Annexure II for the Guidelines on Healthy Eating*).
- Dry beans, peas, lentils and soya should form part of a healthy eating plan with a variety of foods and should be eaten regularly, i.e. at least 4 times per week.
- A serving size is:
 - ½ cup of cooked or canned dry beans, peas or lentils
 - 3 tablespoons (45 ml) dry soya mince

⁵ Vorster HH, Badham JB, Venter CS. An introduction to the revised food-based dietary guidelines for South Africa. *S Afr J Clin Nutr* 2013;26(3):S1-S164.

- *Red speckled beans, kidney beans, small white beans, lentils and split-peas are available in many supermarkets in the country. Soya mince is also available, but some flavoured brands can be high in salt (sodium).*

4.2 EATING DRY BEANS, PEAS, LENTILS AND SOYA CONTRIBUTE TO BETTER HEALTH

Here are top reasons why dry beans, peas, lentils and soya contribute to health⁶:

- **Their low glycaemic index, low fat and high fibre content, make them suitable for people with diabetes.** They increase satiety and help to stabilize blood sugar and insulin levels by reducing spikes after eating and improving insulin resistance, making pulses an ideal food for controlling blood sugar levels in diabetes, and for weight management.
- **They may reduce the risks of coronary heart disease.** They are high in dietary fibre, which is well known for reducing LDL cholesterol, a recognized risk factor in coronary heart disease. They are also naturally **cholesterol-free** and low in fat.
- **Dry beans, peas and lentils are rich in resistant starch** (does not get digested easily) and insoluble fibre that feeds the good bacteria in the gut. This can **improve colon health**, helping to prevent colo-rectal cancer.
- **They are good sources of vitamins**, such as **folate**, which reduces the risk of neural tube defects (NTDs) like **spina bifida** in newborn babies.
- **They are a source of non-haeme iron**, which means they can contribute to **preventing iron deficiency anaemia**, especially when combined with food containing vitamin C to improve iron absorption.
- **They are good sources of protein.** Dry beans, peas, lentils and soya beans typically contain about twice the amount of protein found in whole grain cereals such as wheat, and three times than what is found in rice. Protein quality is important for growth and development. The protein quality of vegetarian diets and plant-based diets is significantly improved when dry beans, peas, lentils and are eaten together with cereals.
- **They are gluten-free**, making them suitable for those who have intolerances to gluten.
- **They are rich in bioactive compounds** such as phytochemicals (plant-based chemicals) and antioxidants that may contain **anti-cancer properties**.
- **They are low in sodium and a good supplier of potassium** which help prevent and manage high blood pressure.
- **They promote bone health.** They provide calcium which can promote bone health and reduce the risk of osteoporotic fractures.

⁶ Food and Agriculture organisation of the United Nations. Available from Nutritional benefits of pulses. <http://www.fao.org/pulses-2016/communications-toolkit/fact-sheets/en/>

- **They** contain phytoestrogens, which may also prevent **cognitive decline and reduce menopausal symptoms**.

See Annexure I for useful facts and references.

4.3 DRY BEANS, PEAS, LENTILS AND SOYA CAN BE USED IN MANY DIFFERENT DISHES

- There are many interesting ways how to include dry beans, peas, lentils and soya in our eating plans:
 - Dry beans, peas, lentils and soya can be gradually phased into a person's eating plan in order to become more familiar with these foods and to minimise gastrointestinal discomfort.
 - They can be used instead of meat, or added to meat as a meat extender. They are also more economical than meat.
 - Keep a variety of canned lentils, beans, or chickpeas for a quick meal (e.g. salad with chickpeas, or baked beans on whole-wheat toast) or side dish (e.g. beans salad at a braai).
 - Consider vegetarian days like Meatless Mondays, and use dry beans, split peas, lentils or soya in place of meat.
 - Change your favorite recipe by replacing half the meat with dry beans, peas, lentils or soya.
 - Try a new recipe for dry beans, peas, lentils or soya each week.
 - Add dry beans, peas, lentils or soya to your favourite recipe.
 - Enjoy bean soups or a bean salad for lunch or for dinner.
 - Try a bean or lentil dish when eating out instead of a meat dish.
 - Try a vegetarian burger with a salad when eating out.
 - Experiment with recipes such as lentil soup, chili, bean salad, etc.
 - Cook a large batch of beans and freeze into smaller portions.
 - Try hummus, or other bean dips, with fresh cut vegetables for a healthy snack.

4.4 DON'T LET CONCERNS ABOUT BEING BLOATED STOP YOU FROM EATING DRY BEANS, PEAS AND LENTILS; RATHER TAKE STEPS TO PREVENT THIS FROM HAPPENING.

- Some people experience bloating and gas as a result of eating and this is often said to be a reason why people do not consume these foods more often.
 - People react differently to pulses. Therefore these symptoms can subside if intake of dry beans, peas, lentils and soya is gradually introduced and becomes a regular part of a person's diet.

- Soaking beans and chickpeas before cooking as well as rinsing canned beans and peas, can help to reduce the hard to digest carbohydrates. Change the water once or twice during the traditional (overnight) soak. Don't use the soaking water to cook the beans or chickpeas. The water will have absorbed some of the gas-producing, hard to digest carbohydrates.
- Canning eliminates some of the gas-producing carbohydrates. If canned beans or peas are used, they should be drained and rinsed.
- Simmer dry beans, peas and lentils slowly until they are tender. This makes them easier to digest.
- Digestive aids can also help when eating pulses to help reduce the amount of gas they produce.

4.5 BEFORE COOKING, SOAK DRY BEANS OVERNIGHT IN PLENTY OF COLD WATER

- Dry beans and dry chickpeas (not canned) need to be soaked before cooking. It is not necessary to soak split-peas and lentils. It is important to sort and rinse pulses and soya beans first to remove any debris that may exist.
- Canned dry beans, peas and lentils have already been cooked and can be used straight away, after it has been drained and rinsed to reduce its salt (sodium) content and to reduce the hard to digest carbohydrates (dry beans and chickpeas).
- Soaking dry beans and chickpeas in water from 4 to 8 hours will:
 - Dramatically reduce the cooking time and the tendency to cause flatulence.
 - Ensure that dry beans and chickpeas can be more easily digested and their nutrients better absorbed by the body. Raw dry beans, peas and lentils contain high levels of 'anti-nutrients' such as phytate, tannin and phenol, which may limit the body's absorption of certain minerals, such as iron and zinc.
- Soak beans or chickpeas in plenty of water. *Use at least 3:1 ratio of water to beans or chickpeas, i.e. 3 cups of water for every 1 cup of beans.*
- Some recipes suggest adding baking soda to help soften beans, to eliminate gas, to retain colour or to lessen cooking time. This is not recommended as baking soda destroys vitamins such as thiamin, and may make the pulses too soft and give it a soapy taste afterwards.
- **Hot soak** (reduces cooking time)
 - Place beans or in a pot and cover with water
 - Heat to boiling and boil for an additional 2 to 3 minutes.
 - Remove beans from heat, cover and let stand for 4 to 24 hours
 - Drain beans, discard soak water and rinse with fresh, cool water.
- **Traditional soak** (Cold water starts the rehydration process slowly, so beans will appear wrinkled after soaking)

- Pour cold water over the beans to cover.
 - Soak beans for 12 hours or overnight.
 - Drain beans, discard soak water and rinse with fresh, cool water.
- **Quick soak**
 - Place beans in a large pot and cover with water.
 - Bring to boil and boil for an additional 2 to 3 minutes.
 - Drain beans, discard soak water and rinse with fresh, cool water.
- **Microwave soak**
 - Combine pulses and water in a suitable microwave casserole dish, cover and microwave on high for 10-15 minutes. Let stand for 1 hour.
 - Drain beans, discard soak water and rinse with fresh cool water.
- **Sprouting**
 - Soak and drain the pulses every 4 to 8 hours for 1 to 5 days. Sprouting pulses can be eaten raw and are more easily digestible.

4.6 DRY BEANS AND TO A LESSER EXTENT – PEAS AND LENTILS, SHOULD BE COOKED THOROUGHLY AND DRAINED WELL BEFORE SERVING

- The exact cooking time depends on altitude, bean variety, water hardness and the age of the beans. Try not to cook dry beans, peas or lentils together as each has its distinct cooking time. Generally, most beans, whole peas and chick-peas will cook to the desired tenderness in 1 to ½ hours, split-peas about 45 minutes and whole lentils 20 – 30 minutes. Soya beans take longer to cook: about 3 – 4 hours.
- Beans increase in size by 2 ½ times after cooking.
- Place lentils or split-peas or pre-soaked beans or chickpeas in a pot with fresh cold water. During cooking the quantity of water should not exceed a third of the volume. Cover, bring to the boil and simmer with the lid still loosely covering (it stops the water evaporating too much) until they are soft and tender.
- Add seasonings such as bay leaves, onion, garlic, pepper corns when starting cooking, but leave salt, acidic foods and condiments, such as tomatoes, lemon juice and vinegar until after cooking as it can harden beans. Add tender herbs and spices near the end of the cooking process because their flavours tend to diminish the longer they are cooked. Do not add salt during cooking as salt has a hardening effect: it roughens the skin and stops the inside from the bean becoming tender.
- Make sure all kidney and soya beans are boiled vigorously for 10 minutes at the beginning of cooking in order to destroy any toxins.
- When cooking, a white scum often floats to the surface; skim this off with a spoon.

- When using a pressure cooker, be sure the pot is no more than half full (including liquid). Cooking times vary for dry beans, peas or lentils; therefore the manufacturer's instructions should be used. Generally soaked beans take 15 minutes and unsoaked beans require 20 – 25 minutes. Reduce pressure at the end of the cooking time by running cold water over the lid of the pressure cooker. The cooker can also be removed from the heat and allowed to gradually reduce its pressure. If this method is used, remember that the beans, peas or lentils continue cooking. Therefore, the cooking time shown on the appliance's cooking table must be reduced by 2 – 3 minutes. To prevent the mixture from frothing or bubbling up through the pressure valve during cooking, add one tablespoon of vegetable oil per cup of beans, peas or lentils before cooking. The oil will keep the skins that come loose during cooking from rising up and clogging the steam escape valve.
- Cooking beans in a slow cooker takes 6 to 8 hours on a low setting or 3 – 4 hours on a high setting.
- A wonderbag or haybox works like a slowcooker without an electrical outlet and is useful to save energy. Cooking times in a wonderbag/haybox can even be less than in a slowcooker set on low (*See Annexure III for information on how to cook pulses in a wonderbag or haybox*).
- Microwaving does not reduce the cooking time for dry beans, peas and lentils. It usually takes 60 – 90 minutes to cook beans to maximum and uniform tenderness with this method.
- When dry beans, peas and lentils in the oven, be sure to add sufficient water or liquid, otherwise the dampness left from soaking evaporates and the pulses harden.
- Soya mince can be used in the place of real mince. Reconstitute the soya mince by soaking it in water for 5-10 minutes before cooking, or by following the manufacturer's instruction. Soya mince requires seasoning, so that it absorbs flavour when cooked together with other ingredients. Some of the commercially flavoured soya mince brands can be high in salt (sodium).

4.7 GET THE MOST OUT OF DRY BEANS, PEAS AND LENTILS – STORE THEM PROPERLY

- Store dry beans, peas and lentils in a cool, dark and dry place and consume within 3 months. They are safe to eat after this time, but they gradually decline in nutritional value and cooking value after harvest.
- If the bag is opened, store the dry beans, peas and lentils in an airtight container. The older the dry beans, peas and lentils are, the harder they become and may then need to be cooked for longer.
- Canned beans, lentils and chickpeas are convenient, but more expensive than dried beans, peas and lentils. They also tend to be softer and blander than beans, peas and lentils that are home-cooked. Because canned foods have a high salt (sodium) content, canned beans, peas and lentils should be rinsed.

- Cooked beans, peas and lentils that are not eaten immediately, should be cooled down and placed in a closed container in the fridge or freezer.
- Cooked beans, peas and lentils should not be left at room temperature for more than two hours
- Cooked beans, peas and lentils that are kept in the fridge should be eaten within two days.
- Cooked dry beans, peas and lentils can be frozen for 2 – 3 months. Portion and freeze them in smaller quantities according to need. Defrost by placing into hot water for 5 minutes (if frozen in plastic bags) or use the microwave.

5. NNW PARTNERS

- National and Provincial Departments of Health
- Department of Basic Education
- Department of Defence
- The Association for Dietetics in South Africa (ADSA)
- The Nutrition Society of Southern Africa (NSSA)
- The Heart and Stroke Foundation SA (HSFSA)
- Consumer Goods Council SA (CGCSA)
- Consumer Education Project (CEP) of Milk South Africa

6. WEBSITES:

- National Nutrition Week: www.nutritionweek.co.za;
- The Department of Health: www.health.gov.za;
- The Association for Dietetics in South Africa (ADSA): www.adsa.org.za
- The Nutrition Society of Southern Africa: www.nutritionssociety.co.za;
- The Heart and Stroke Foundation SA: www.heartfoundation.co.za;
- Consumer Education Project Milk South Africa: www.rediscoverdairy.co.za

ANNEXURE I

USEFUL FACTS AND REFERENCES

- Legumes provide a valuable and cost-effective source of protein and other nutrients. A review of different foods found that beans were among the top 5 classes of food having the highest micronutrient to price ratio, therefore providing 'exceptional nutritional value for money'⁷.
- The protein content of most beans (uncooked) averages 20 – 25% according to weight, whereas the protein content of soy is approximately 36% according to weight⁸. Legumes are considered to be incomplete proteins (except soy) because they contain relatively low quantities of the essential sulphur containing amino acids (which are found in higher amounts in grain). Grains such as maize meal and wheat contain limited amounts of lysine and a combination of legumes and grains improve the protein quality⁹.
- Legumes are rich in low glycaemic index carbohydrates, resistant starch, oligosaccharides and fibre¹⁰. The resistant starch, oligosaccharides and fibre pass undigested through the stomach and small intestine until they reach the colon, where they act as prebiotics of food for the probiotic or beneficial bacteria residing in the colon. Their bacterial fermentation leads to the formation of short-chain fatty acids, such as butyrate, which may improve colon health by promoting a healthier gut microbiome, thus reducing the risk of cancer¹¹.
- Some people experience bloating and gas as a result of eating beans and this is often said to be a reason why people do not consume beans more often. Evidence shows that people may develop a tolerance to flatulence produced or gastrointestinal symptoms associated with consumption of pulses. In those who consumed pulses for a period of 8 weeks, study participants did not perceive significant changes in the severity of flatulence.¹². Similar findings

⁷ Drenowski A, The nutrient rich foods index to help identify healthy, affordable foods. *Am J Clin Nutr.* 2010; 91: S1095 – 101.

⁸ Langenhoven ML, Kruger M, Faber M. *MRC food composition tables.* 3rd ed. Parow Valley: Medical Research Council; 1991.

⁹ Kouris-Blazos A, Belski, R. Health benefits of legumes and pulses with a focus on Australian sweet lupins. *Asia Pac J Clin Nutr.* 2016; 25 (1) 1 – 17.

¹⁰ McCrory MA, Hamaker BR, Lovejoy JC, Eichelsdoerfer. Pulse consumption, satiety, and weight management. *Adv Nutr (Bethesda).* 2010; 1:17-30. doi: 10.3945/ an.110.1006.

¹¹ Slaving J. Fiber and Prebiotics: mechanisms and health benefits. *Nutrients.* 2013; 5: 1417 – 1435. doi:10.3390/nu5041417

¹² Veenstra JM, Duncan AM, Cryne CN, et al. Effect of pulse consumption on perceived flatulence and gastrointestinal function in healthy males. *Food Res Int.* 2009;43(2):553-559.

were reported in another study where only a small percentage of participants (19%) reported increased flatulence¹³.

- Legumes are low in sodium and a good source of B vitamins, iron, zinc, calcium, magnesium, selenium, phosphorus, copper and potassium, but are a poor source of fat soluble vitamins and vitamin C. They are generally low in fat and have no cholesterol. Soybeans and peanuts are the exception, with significant levels of mostly mono- and polyunsaturated fatty acids¹⁴.
- The nutritional quality of legumes may be affected by anti-nutritional factors which they contain that reduce the digestion and absorption of nutrients or interfere with their action. Some can also be toxic. Anti-nutritional factors can decrease palatability, diminish protein digestibility and mineral bioavailability¹⁵. Therefore legumes (except sweet lupin) should not be eaten raw. Traditional food preparation techniques such as soaking, boiling, sprouting and fermenting not only improve flavour and palatability of legumes but also increase the bioavailability of nutrients, by deactivating anti-nutritional factors¹⁶.
- Epidemiological studies over the last 20 years have confirmed that eating legumes regularly can prevent chronic disease, including cardiovascular disease, diabetes, cancer and overweight, as well as improving gut health.^{17,18,19} A review of 21 trials showed modest weight loss with dietary pulse intake²⁰.
- A study of older people from different cultures has shown that every 20 g increase in daily legume intake reduced the risk of death by 8%²¹. A study on the Mediterranean diet, which

¹³ Winham DM, Hutchins AM. Perceptions of flatulence from bean consumption among adults in 3 feeding studies. *Nutr J.* 2011;10:128.

¹⁴ Langenhoven ML, Kruger M, Faber M. MRC food composition tables. 3rd ed. Parow Valley: Medical Research Council; 1991

¹⁵ Kouris-Blazos A, Belski, R. Health benefits of legumes and pulses with a focus on Australian sweet lupins. *Asia Pac J Clin Nutr.* 2016; 25 (1) 1 – 17.

¹⁶ Xu B, Chang SKC. Effect of soaking, boiling, and steaming on total phenolic content and antioxidant activities of cool season food legumes. *Food Chem.* 2008; 110:1-13. doi: 10.1016/j.foodchem.2008.01.045

¹⁷ Kushi LH, Meyer KA, Jacobs Jr DR. Cereals, legumes, and chronic disease risk reduction: evidence from epidemiologic studies. *Am J Clin Nutr.* 1999;70:451S-8S

¹⁸ Curran J. The nutritional value and health benefits of pulses in relation to obesity, diabetes, heart disease and cancer. *Br J Nutr.* 2012;108:S1-S2. doi: 10.1017/S0007114512003534

¹⁹ Afshim A, Micha R, Khahibzadeh S, Mozzafarian D. Consumption of nuts and legumes and risk of incident ischemic heart disease, stroke and diabetes: a systemic review and meta-analysis. *Am J Clin Nutr.* 2014; 100: 279 – 288.

²⁰ Kim SJ, de Souza RJ, Choo VL, et al. Effects of dietary pulse consumption on body weight: a systematic review and meta-analysis of randomized controlled trials. *Am J Clin Nutr;* 2016; 103:1213 – 1223.

²¹ Darmadi-Blackberry I, Wahlqvist M, Kouris-Blazos A, et al. Legumes: The most important predictor of survival in older people of different ethnicities. *Asia Pac J Clin Nutr.* 2004; 13(2): 217 – 220.

promotes higher legume intake, has also found a 14% lower mortality²². The Japan Collaborative Cohort (JACC) Study found that the highest bean intake (4.5 servings per week) was associated with a 16% reduction in total cardiovascular risk and a 10% reduction in mortality²³.

- Legumes are among the foods that are least consumed in South Africa. The percentage of South Africans consuming legumes daily is 15.23%²⁴. An average daily per capita pulse consumption of 35.66 g was estimated from secondary dietary analyses²⁵.
- The Australian Grains & Legumes CouncilTM recommends eating legumes 2-3 times a week to reduce risk of heart disease and help manage blood glucose levels. The top three reasons reported for not eating legumes were: lack of knowledge of how to prepare them, a poor understanding of the health benefits and concern over side effects such as bloating and flatulence²⁶.

²² Trichopoulos A, Bamia C, Trichopoulos D. Anatomy of the health effects of the Mediterranean diet: Greek EPIC prospective cohort study. *BMJ*. 2009;338:b2337.

²³ Nagura J, Iso H, Watanabe Y, et al. Fruit, vegetable and bean intake among Japanese men and women: the JACC study. *Br J Nutr*. 2009; 102 (2): 285 – 292.

²⁴ Steyn NP, Bradshaw D, Norman R, et al. Dietary changes and health transition in South Africa: implications for health policy. Cape Town: MRC; 2003.

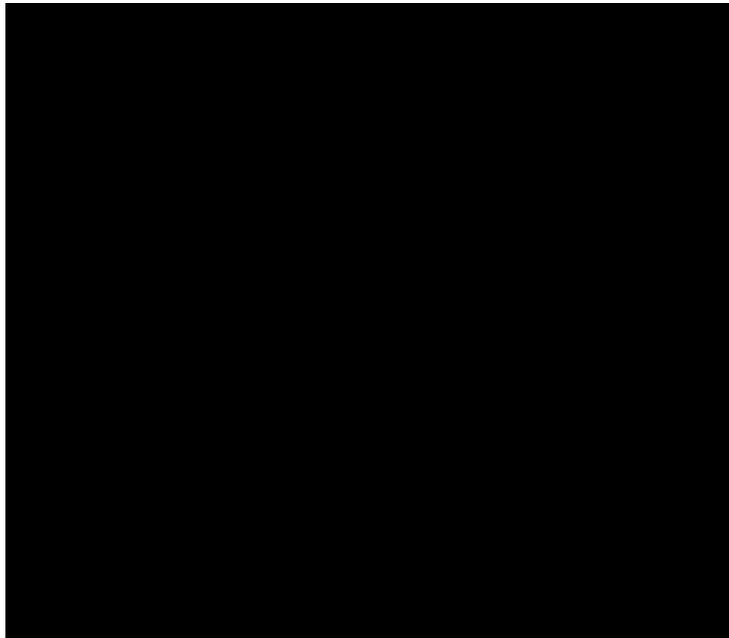
²⁵ Steyn NP, Nel JH, Casey A. Secondary data analysis of dietary surveys undertaken in South Africa to determine usual food consumption of the population. *Public Health Nutr*. 2003; 6(7):631-644.

²⁶ Go Grains Health & Nutrition. The Grains and Legumes Health Report. North Sydney NSW, Australia: Go Grains Health & Nutrition Ltd; 2010

ANNEXURE II

SOUTH AFRICAN GUIDELINES FOR HEALTHY EATING (FBDGs) FOR ADULTS AND CHILDREN 5 YEARS AND OLDER

- Enjoy a variety of foods
- Be active!
- Make starchy foods part of most meals
- Eat plenty of vegetables and fruit every day
- Eat dry beans, split peas, lentils and soya regularly
- Have milk, maas or yoghurt every day
- Fish, chicken, lean meat or eggs can be eaten daily
- Drink lots of clean, safe water
- Use fats sparingly. Choose vegetable oils rather than hard fats
- Use sugar and foods and drinks high in sugar sparingly
- Use salt and food high in salt sparingly



This picture depicts the Food Guide. The size of the circles reflect the proportional volume that those foods should contribute to the total daily intake

ANNEXURE III

USE A WONDERBAG OR HAY BOX TO SAVE ELECTRICITY

A haybox or wonderbag cooks food over a long period of time on low heat. It works like a slowcooker, but it doesn't need to be connected to an electrical outlet. It can be used to prepare any recipe which involves boiling, roasting, simmering, or steaming food. It also works great to keep cooked food warm, like putting soup in a thermos.

Benefits of a haybox or wonderbag:

- Saves cooking time and energy
- Food ready is ready in the morning (e.g. porridge) or when a person comes home from work
- A dish won't burn, overcook, or dry out.

Wonderbag

The wonderbag is commercially available and can be ordered online. The manufacturer's instruction regarding use and care of the wonderbag should be followed.

Haybox

Examples of insulation material:

- Hay/straw
- Any other material that traps pockets of air will have insulating value: sawdust, newspaper or other shredded paper, fur feathers, wood ash, cardboard, aluminum foil
- Wool in the form of cast-off sweaters and blankets
- Cotton or polyester batting taken from old pillows or quilts
- Styrofoam or foam.

Examples of containers for the insulation (the lid must latch or otherwise secure tightly):

- Boxes: Any wooden or cardboard box big enough to hold the pot.
- Coolers
- Kitchen drawer: Must be deep and large enough to hold the pot.
- Baskets

Method:

- Fill the box up all the way with insulation to the top but do not pack it so tightly that there's no airspace.
- Make a pot-shape hollow in the insulation material. Line the hole and the top surface of the insulation with fabric. Secure the fabric to the edges of the container. This will make it easier to lift the pot in and out of the container and will also keep bits of insulation out of the food.
- Make or find a cushion/pillow big enough to fill all the empty space in the box from the top of the pot to the closed lid. There should be no open space at the top of the box.

Cooking time in the wonderbag/haybox:

- The amount of cooking needed will depend on the type of food that is prepared, the length of preliminary boiling *and* upon how tightly the haybox is insulated. A well-insulated haybox should hold heat for up to eight hours.
- At least 15 minutes boiling time is needed for most dishes (rice and lentils need less time – 5 and 10 minutes respectively).
- Less liquid can be used than normal since there is less evaporation in the haybox.
- The following cooking times in the wonderbag or haybox serve as general guidelines:
 - Lentils: 1 – 2 hours
 - Chickpeas: 4 – 5 hours
 - Kidney beans: 5 – 6 hours