

# Developing new and exciting soya recipes for the NSNP

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Proper nutrition plays an important role in the development of young bodies and minds. A nutritiously balanced diet can promote children's ability to learn, play and develop to become the best version of themselves and supports the strive towards a healthy and happy adult population.

With this in mind, the South African government, through the Department of Basic Education, in 1994 implemented the National School Nutrition Programme (NSNP). This government programme provides one nutritious meal to learners on every school day in less fortunate primary and secondary schools. The NSNP provides nine million learners with a meal each day. For many of these children, this is their only meal of the day.

The NSNP menus consist of one portion of protein, starch, and fruit or vegetable per day. The protein portion includes various options such as beans, soya, pilchards, peas, lentils, sourmilk or chicken, which are served on alternating days throughout the week. Soya plays a key role in the

NSNP as one of the protein options in the meals and is served up to two times a week, accompanied by various starchy staples. Menus in the different provinces are based on availability and preference.

During the review of the NSNP in 2016, it was found that learners ate less on days that soya was served. Therefore, it was necessary to investigate the role of soya within the NSNP and to identify the reason behind this. Based on the outcome of the research, feasible solutions could be tabled to ensure that learners not only enjoy the soya-based meals, but also become lifelong consumers thereof.

## A closer look at soya and the NSNP

The project was divided into four components and carried out in four phases. Firstly, a literature review was conducted to familiarise the researchers with school feeding schemes, and more specifically, the NSNP as well as identifying available literature and methodologies with specific emphasis on soya.

In the second phase, three secondary schools which are classified as 'no fee

schools' and are included in the NSNP, were visited. Insight gained from these visits were published in an article in the June 2021 issue of *Oilseeds Focus*, titled 'Exploring soya within the National School Nutrition Programme'. The information gathered in the first and second phase was used to establish recipe development in the third phase, and a consumer taste panel was conducted in the fourth.

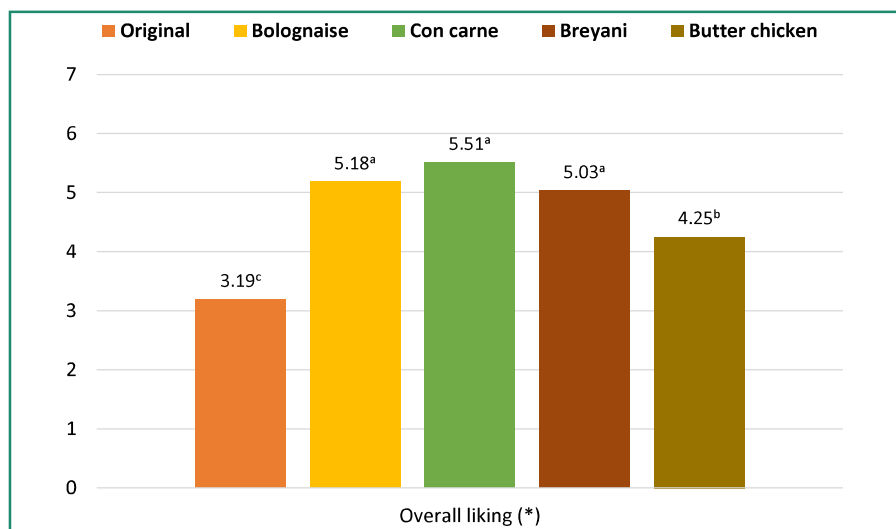
Three secondary schools in the Tshwane District in Gauteng were visited and interviews were conducted with the principals, food handlers and teachers in charge of overseeing the NSNP activities. Once researchers had a clear understanding of the issues at hand, a plan was devised on how to improve the soya-based meals.

The recipe developers took the following guidelines into consideration when developing the new recipes:

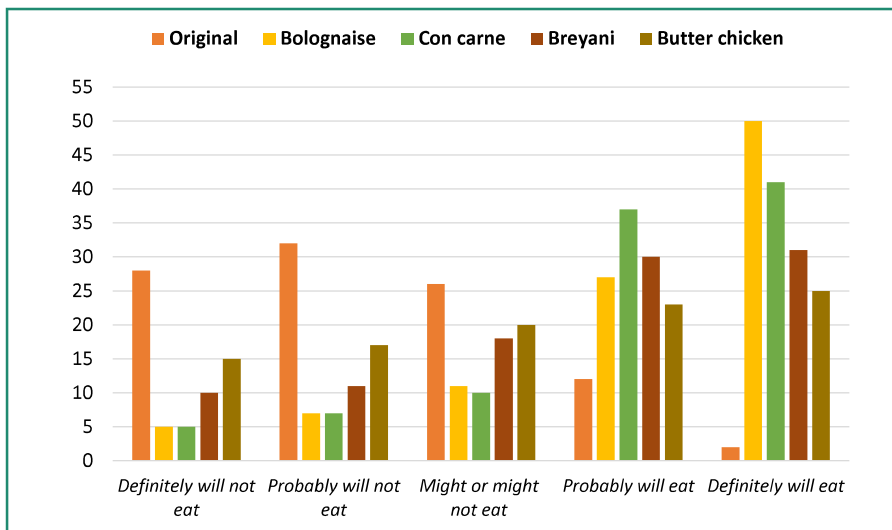
- Use low-cost, readily available ingredients (as provided by the NSNP).
- Use basic equipment to make the meals.
- Recipes must be easy to read and follow.
- Be successfully tried out following the recipe developed by a minimum of three people.
- Be nutritious and tasty.
- Have a limited number of ingredients.
- Be flexible so the same basic recipe can be used with fresh, frozen or canned food varieties.

The limited resources available to food handlers provided quite a challenge in recipe development, but additional visits to the schools and insight from various role-players within the scheme ensured that the four recipes that were developed ticked all the boxes. The recipes were triple tested and evaluated by three different parties in two different kitchens to ensure they are repeatable and reliable.

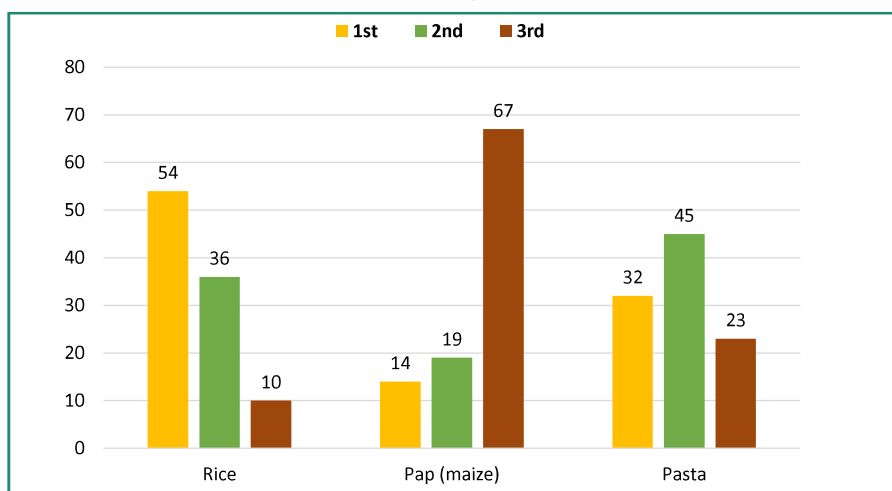
Figure 1: Overall liking of the five different recipes by the panellists.



**Figure 2: Panellist’s willingness to consume the five different recipes.**



**Figure 3: Preferred starches to serve with soya-based meals.**



The dishes chosen were beef bolognaise with soya mince, butter chicken, chili con carne with soya mince, and one-pot soya breyani. These recipes showcase the versatility of soya and how it can be appealing to any palate.

**New recipes are put to the test**

It was essential to test these recipes under the relevant demographic group to ensure they adhered to the NSNP guidelines and were appealing to learners. To achieve this, a consumer sensory panel of 100 learners was conducted at the sensory science laboratory facility at the University of Pretoria. Participants for this study were screened by means of citizenship (only South Africans), home language (Ndebele, Northern Sotho, Sotho, siSwati, Tsonga, Tswana, Venda, Xhosa and Zulu) and age (18 to 21 years old).

To set a baseline, the four newly developed recipes were served along with the soya-based meals that are currently served to learners within the NSNP, to see whether the new recipes were more appealing. With regards to the overall palatability of the meals, the chili con carne with soya mince came out as the favourite, followed by the bolognaise and the one-pot soya breyani as a third option, although not significantly so (Figure 1).

The butter chicken was the least preferred of the new recipes. The original meal as currently served in the NSNP was the least favourite dish (Figure 2). The participants were asked various questions regarding the taste, appearance and liking of the meals served.

Questions regarding the starch options served with the meals were also perused. More than half of the learners selected rice

as their first preference to consume with meals. This is important data as both the beef bolognaise and the chili con carne soya mince meals were served with rice.

Although maize porridge (pap) was reported to be the most often consumed food in South Africa, two-thirds of the children indicated that pap was only their third choice. Pasta was not reported as a favourite but was selected as most learners’ second option (Figure 3).

During the school visits, it was found that there is a negative perception regarding soya served in the NSNP. Learners do not like the unappealing appearance, aroma or taste of the current soya-based meals and are therefore unwilling to consume soya on days that it is served.

**A worthy investment**

During the testing, preparation and finalisation of the four new recipes, every possible variable and occurrence that may occur in the NSNP was considered. Serving an appealing meal with limited resources and supplies requires planning and creative thinking. The newly proposed recipes to include in the programme took both the learners’ preferences, as well as the schools’ resources into consideration.

As the meals served to these learners may be the only ones they will receive for the day, it is essential to make it a meal that they are willing to eat; one that is both appetising and nutritious.

It was found that there was a general lack of knowledge surrounding what soya is, the various ways in which it can be prepared, as well as the contribution it can make to a person’s diet. This study identified possible gaps for consumer education and allowed for the improvement of soya-based meals to entice a future generation of soya consumers. 🌱

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