



# Full of Potential

## IYM part 2

Continuing ideas for exploring the environment in the 2023 International Year of Millets  
By Jeanie Clark

What is 'full of potential' in your life? Perhaps it is your learners? A new avenue of learning? Or a holiday? What do your learners think? This article focuses on the second part of the 2023 *International Year of Millets* (IYM) slogan, 'full of potential' as shown in the header above [1]. I have included some suggestions for literacy activities and resources for learning about 'potential' and millets as a crop/food.

### The meaning of potential

Let's start your learners with a challenge based on the word 'potential' to illustrate what it means. How many words do you think you could make from the letters in the word 'potential'? i.e. What is the potential number of words you can form from the letters in 'potential'? Note down your prediction before creating the word list and counting it. Was the predicted number reached? Exceeded? Was 'potential' rich in hidden words?

Could learners now suggest what the 'full potential' of English words from the letters of 'potential' might be—the total number that can be made? The actual total can be found by using an unjumble word website, like *UnscrambleX* [2]. (Did its full potential surprise you?) Can your learners now explain what 'potential' and 'full potential' means? Don't neglect to use a dictionary to confirm the meaning of these.

What aspects of millets could have potential? Millets are both a crop and a food. What do your learners think could be potential values for either of these? Babele's diagram, Figure 1 right, shows potential benefits of millets in three key areas: human health, farming and the planet [3]. Key potentials would be to improve nutrition, food security, sustainable farming practices in a drying climate, and community development in expanding diversity in diets. Could

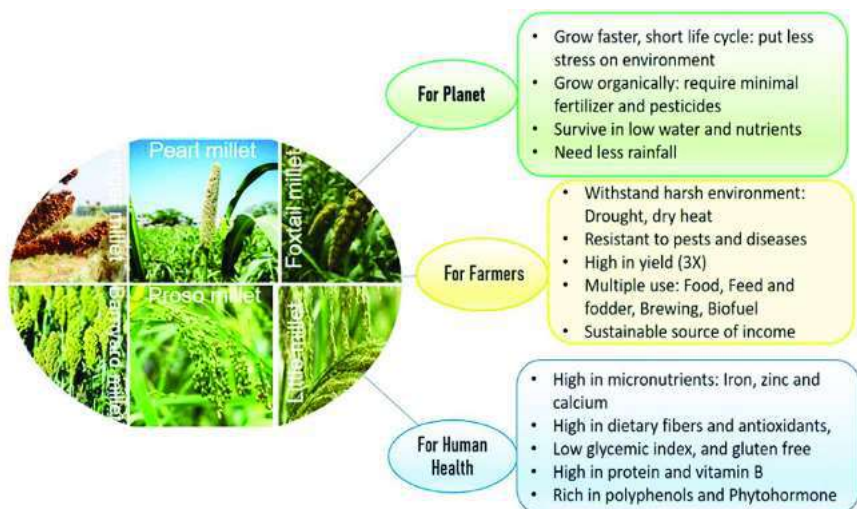
senior learners recreate this poster with symbols instead of words?

### Potential for health

Look at the list of benefits below in Figure 1's section on Human Health. Do your learners recognise any benefits listed there that might be good for specific health needs of their family or community? For example, millets are a gluten-free food, so 'full of potential' for use in foods for coeliacs.

Millets have provided nutritious food for peoples who have grown and eaten them for thousands of years. For example, fonio is a food/crop of the Bedik people of eastern Senegal in West Africa. Their fonio story is on the web at the Guardian [4]. It is suitable for middle-level readers and contains a good suite of photos for all learners. From this, to aid understanding of fonio's potential, make a list of the benefits of its traditional use to the Bedik, and then issues and benefits from exporting it to a country like the USA.

FIGURE 1. Unique properties of millets for climate-smart agriculture, ensuring human health, food and nutritional security. Source: Babele, P.K. et al, [3].



### Potential acreage expansion

The above article indicates that there is potential to increase the area of fonio under production locally. Does it seem surprising to your learners that a traditional crop isn't already at capacity (its full potential) and instead looking for new countries to expand into? Why might this be so?

The answer lies in a history common to colonised places. Colonisation brought the slave trade and then plantations of cash crops replacing local ones. Senegal has a mixed French and British history of this through the 17<sup>th</sup> to 19<sup>th</sup> centuries. In the 20<sup>th</sup> century, the Green Revolution demanded more land for new, high yielding crops, especially wheat and rice. But fonio survived, being adapted to its environment. As urbanisation and western foods increased, use of, and attitudes to using, fonio declined. But as fonio needed less work and grew more quickly than the introduced crops, some traditional communities still grew it. In the 21<sup>st</sup> century, the potential of fonio for sustainable farming, health, food security and as a 'superfood' has been recognised and plantings are increasing.

### Potential in Australia

Sorghum and millets are farmed in Australia. Learners can find out where from the *Australian Grains Innovation Centre's* online map of Australian Agroecological Regions [5]. Its detailed key indicates current growing areas are in New South Wales and Queensland.

What environmental aspects do your learners think might affect the potential expansion of the above areas? As with any crop, soils, temperatures and rainfall are key factors.

The shading on the map right shows the potential area for Pearl Millet growing [6]. The limits are 300-800 mm rainfall and a January-March minimum temperature of 15C.



(If you have an older learner who is interested in plants, the article this map comes from has great detail in comparing sorghum and millet for their food values, chemical and structural compositions, and photos and diagrams at cell level and as a growing and mature plant [7].)

With a warm to hot summer and irrigation water in the New South Wales Riverina, a farming family has tapped into the traditional Ethiopian millet, teff, for its potential for health and sustainable farming to create a 'paddock-to-plate' teff business [8]. A four-minute video describes what they have done [9]. From this video, learners could make a list of all the different aspects of growth that teff has created for this farm business, as an example of the range of

potential benefits of a new millet industry in Australia. They could add to this any wider off-farm potential benefits, using Figure 1's lists for hints for farm and planet benefits.

This family farm is a good example of the potential of a traditional African millet to create a new industry in the West. Millets are full of potential for the Western world, in sustainable farming, healthy products, new employment opportunities and new foods.

Could fonio be grown in Australia? Use climate and soil maps, to see where these requirements might meet: 'tropical climates with a marked dry season, average temperatures of 25 to 30°C and between 900 and 1000 mm of rainfall ... and light (sandy to stony) soils.' [10]. (Hint: Use a book atlas to quickly find these maps at a continental level!)

### Potential in cooking

Knowing that sorghum, millet and teff are grown here suggests a potential for new foods and cooking—and that requires recipes. Millet recipes can easily be found with a web search. Read the ingredients carefully, even on Australian recipes. Millet, and perhaps other ingredients too, may require additional research to purchase. An example of this comes from the ingredients in the *Women's Weekly* web recipe for Roasted Beetroot and Millet Salad - which includes 'harissa' [11].

Remembering that there are many millet types, when looking for recipes, the specific names should be used, e.g. teff. *Outback Harvest* is an Australian website with some 20 teff recipes on it, and a stockist list for obtaining teff flour (photo right) [12,13]. Again, watch for other less common ingredients such as coconut sugar for the Triple Chocolate Peanut Chunk Cookies [14].



Returning to fonio, it is exported to the USA as a 'superfood' by a New York-based Senegalese chef, who created a food company to buy fonio from smallholder Bedik farmers, process it and sell it (photo right). He saw its great potential in cuisine as it:

- cooks quickly into a light, fluffy cereal with a nutty taste [15].
- can be used as a rice, couscous or quinoa substitute in recipes [16].
- can be used in many hot and cold dishes like salads, casseroles, burgers, stuffings and baked goods.
- is used in his online recipes by home and restaurant cooks, eg Mango Fonio Salad [17]
- is used by other chefs, like the Houston-based Eritrean, who provides a video for his Fonio





Cheesecake recipe [18].

To ensure that benefits go back to the communities, his company works with an aid organisation, which includes improving fonio farming in Senegal [19].

Now, can your learners summarise what 'full of potential' might mean for millets? With a changing drying climate, tough millets are becoming more useful as a crop in both traditional and new regions. As indigenous crops of long standing, they are being reclaimed for their food security and health benefits in home regions. As a nutritious gluten-free food, they are expanding in the West. But there is more – IYM2023 reminds us that millets have the potential to support six of the 2030 Sustainable Development Goals for a fairer, healthier world: SDG 2 (Zero Hunger), SDG 3 (Good health and well-being), SDG 8

(Decent work and economic growth), SDG 12 (Responsible consumption and production), SDG 13 (Climate action) and SDG 15 (Life on land) [20].

### Potential action

Raising awareness of an issue is always the first aim of an IY. Good health is for everyone, everywhere. What action could your learners take for this IYM? Some potential actions could be to grow a millet, buy a millet food product, make a millet recipe, or sprout millet seed for a salad. The *Australian Wheatgrass* website is one source of seed for sprouting. The potential is there to try something new!

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### Direct links to webpages in this article

- [1] FAO, 2022, 'IYM2023 twitter cover' at [https://trello.com/1/cards/6336fe7d7f2ff105e64093a9/attachments/6374fdad434f000168836616/download/IYM2023\\_TW\\_Cover\\_1500x500px\\_EN.jpg](https://trello.com/1/cards/6336fe7d7f2ff105e64093a9/attachments/6374fdad434f000168836616/download/IYM2023_TW_Cover_1500x500px_EN.jpg)
- [2] UnscrambleX, 2023, 'potential' webpage at <https://unscramblex.com/anagram/potential>
- [3] Babele, PK et al, 2022, 'FIGURE 1. Unique properties of millets for climate smart agriculture, ensuring human health, food and nutritional security', p4 in 'Mainstreaming orphan millets for advancing climate smart agriculture to secure nutrition and health' p4 in *Frontiers in Plant Science* 12 Aug 2022, Sec. Plant Nutrition, Vol. 13 – 2022 at <https://doi.org/10.3389/fpls.2022.902536>, diagram at [https://www.frontiersin.org/files/Articles/902536/fpls-13-902536-HTML/image\\_m/fpls-13-902536-g001.jpg](https://www.frontiersin.org/files/Articles/902536/fpls-13-902536-HTML/image_m/fpls-13-902536-g001.jpg)
- [4] Ahmed, K. 2022, 'Fonio just grows naturally: could ancient indigenous crops ensure food security for Africa?' in *the Guardian*, 7 July 2022, online at <https://www.theguardian.com/global-development/2022/jul/07/fonio-indigenous-crops-africa-food-security>
- [5] Australian Export Grains Innovation Centre 2023, 'Australian agroecological regions map' on from 'Australian grain production - a snapshot' at <https://www.aegic.org.au/australian-grain-production-a-snapshot/>
- [6] Pearson, C. J. & Coaldrake, P.D., 1983. Map in 'Pennisetum americanum as a grain crop in Eastern Australia' published in *Field Crops Research* Volume 7, 1983, Pages 265-282 abstract on line at <https://www.sciencedirect.com/science/article/abs/pii/0378429083900369>
- [7] Bryden, W. L et al, 2013, 'Prospects to Enhance Pearl Millet Production and its Uptake by the Poultry Industry' in *Rural Industries Research and Development Corporation*, online at <https://agrifutures.com.au/wp-content/uploads/publications/12-135.pdf> map on p 14
- [8] Teff Team, 2017 'Our Teff Story' in the *Outback Harvest* website at <https://outbackharvest.com.au/our-story>
- [9] CSIRO 2022 'Teff – ancient grain new again' online at <https://vimeo.com/231821096>
- [10] CIRAD, 2019, 'Cultivation in Fonio – an African cereal', online at <https://fonio.cirad.fr/en/the-plant/cultivation>
- [11] The Australian Women's Weekly Food, 2023, 'Roasted Beetroot and Millet Salad' at the *Australian Women's Weekly Food* website at <https://www.womensweeklyfood.com.au/recipes/roasted-beetroot-and-millet-salad-29482>
- [12] Teff Team 2018 'Teff Recipes' in *Outback Harvest* website at <https://outbackharvest.com.au/teff-recipes>
- [13] Teff Team, 2018 'Victoria' in *Outback Harvest* website at <https://outbackharvest.com.au/stockists/2018/3/2/victoria>
- [14] Teff Team, 2018 'Triple Chocolate Peanut Chunk Cookies' in *Outback Harvest* website at <https://outbackharvest.com.au/recipe/2018/3/3/triple-chocolate-peanut-chunk-cookies>
- [15] Yolele, 2020, 'Yolele Fonio 10 oz', at Yolele website at <https://yolele.com/products/fonio>
- [16] Benayoun, M. 2021 'Fonio Porridge', in 196 *flavours* website at <https://www.196flavors.com/nigeria-fonio-porridge/>
- [17] Thiam, P. 2015, 'Mango Fonio Salad' in NBC Connecticut website at <https://www.nbcconnecticut.com/on-air/taste-of-today/mango-fonio-salad-taste-of-today-nbc-connecticut-recipe-senegal/2048026/>
- [18] Khalieb Rufael, March 25 2023, 'For the love of Fonio recipe' online at <https://www.instagram.com/reel/CqLT9ykqYV8/>
- [19] Ahmed, K. 2022, 'Fonio just grows naturally: could ancient indigenous crops ensure food security for Africa?' in *the Guardian*, 7 July 2022, online at <https://www.theguardian.com/global-development/2022/jul/07/fonio-indigenous-crops-africa-food-security>
- [20] FAO, 2022, '1.1 'International Year of Millets (IYM)' in *IYM2023 Communications handbook and toolkit*, p3 at <https://www.fao.org/3/cc3253en/cc3253en.pdf>