

The Beauty of English Agriculture: the Journey of Eight Generations Begins With a Step (A Review)

Igboji, P. O.

Department of Soil Science and Environmental Management, Ebonyi State University Abakaliki, Nigeria.

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ABSTRACT

England is as old as Methuselah. Historians can tell better. Nevertheless, agricultural historians can bear me witness that English agriculture has come of age. Under conventional conditions a generation is equivalent to one century. Therefore, eight generations require eight centuries. The question is what has made an island country conspicuous in the agricultural map of the world. Let us take a look .

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Keywords

England,
Historians,
Agriculture,
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Conspicuous.

Introduction

The origin of England and English language is better done by historians. However, England is a one of the country in United Kingdom. The remaining countries that make up United Kingdom is Scotland, Wales and Northern Ireland. It is a small but mighty kingdom that traverse all nooks and corners of the world in colonial past, present and the future. In view of the fact that all nations of the world that have ever had direct or indirect English touch behaves similar to the English men, including forgetting their mother tongue which the English people have refused to forget. The home base of the country is an island within $51^{\circ} 44'$; $0^{\circ} 26'$, 32 OD. Exactly lying at the center of the earth (the equator) – The Greenwich Meridian. Hence, the Greenwich Mean Time (GMT) from where other geographical times were derived. All forces of nature attract to the equator. Hence, all countries of the world are attracted to Greenwich (England in quote). Their Roman past has shaped their present and the future and may have informed the past, present and future.

Igboji (2015) described fairly five periods of English agriculture. The prehistoric agriculture, time when predominantly all English land was regarded as pristine woodland (6000 BC to 1200 AD). The historic agriculture, period dominated by traditional shepherds and husbandmen whose activities included returning of wheat straw to the land during seedbed preparation and trying of certain innovations like use of red clover seeds imported from Holland to enrich soil fertility (1201 1699 AD). The agricultural revolution marked by the use of agricultural equipment like ploughs, harrow, thresher, chemical fertilizer and soil drainage technology, improved seeds in intensive and extensive arable and pastoral farming (1700 – 1904 AD). The post agricultural revolution, marked by the enclosure of open fields, common lands, meadows and wastes, conversion of land to more profitable uses, example laying of old arable land to permanent pasture or long leys, ploughing and putting under suitable rotation common and rough hills overgrown with weeds or that was bare through overgrazing

(1905 to 1986 AD). The green planet, marked by environmental movements – earth first, green peace, green party and national and international treaties, as well as code of conduct for protection and preservation of air, water and soil resources (1987 to 2025 AD). The post green planet, a period where some environmental problems are envisaged ranging from higher greenhouse gases scenario and climate change (2026 – 2055 AD).

According to agricultural historians it is believed that the earliest agricultural systems of England dates back to 7000 BC when crops were grown on land for a few years after it had been cleared. When the natural fertility of the soil began to fail and crop yields began to decline the farmer moved on to a new area. For settled agriculture to develop some form of systematic rotation was necessary which allowed soil to recover in fertility. It is believed also that a simple rotation may have been practised in England around 1000 BC. The land was left fallow every second year or every third year on the better soils. By the middle ages lowland areas had developed the variant in rotation of fallow in the second year and in the third a crop of beans, which fixes atmospheric nitrogen. In hillier areas, crop growing alternated with pasture, in the north animals were kept in temporal enclosures on the field to ensure their faeces fertilized the soil (RCEP, 1996; Briggs and Courtney, 1989; Davies *et al*, 1992; Fowler, 1983; Rackham, 1986; Dent *et al*, 1966; Simmons and Dooley, 1981).

From the 16th century onwards, more advanced methods spread to England from the continent. The first continuous cropping system was introduced by Townsend in Norfolk in 1730 AD; cereal-turnips; cereal-clover; with sheep grazing turnips in winter and clover ley in autumn. Different rotations followed using new crops, sometimes extending over eight or even ten years. Other innovations, included large scale drainage. For example in East Anglia and new tools for cultivation, such as hand drawn hoes and drills. In addition to farm yard manure, other materials spread on soils to improve fertility included marl, a mixture of clay and calcium carbonate; river sediments, shell

sand, which provided lime; rags, bones, horn, wood, ash and seaweed. In the early 19th century, Humphrey Davy was the first scientist to suggest that plants derive nutrients from the soil, rather than the atmosphere. By the mid 19th century, scientists in England, Lawes at Rothamsted and Liebig from Germany demonstrated the role of soil nutrients in plant growth, thereby opening the way for synthetic fertilizers manufacture and use, especially after the second world war (RCEP, 1996).

Over the past 150 years, a period of innovation in agriculture in Europe, otherwise known as the agricultural revolution, crop and livestock production have assumed different dimensions (Pretty, 2002; Pretty and Ball, 2002; Thirsk, 2000;1991; Holderness and Turner, 1991; Perry, 1973; Chambers and Mingay, 1966). In United Kingdom, crop and livestock production per area have increased three to four folds, as innovative technologies such as the seed drill, novel crops such as turnips and legumes, fertilization methods, rotation patterns, selective livestock breeding, drainage and irrigation developed by farmers, spread to others through tours, open days, farmers groups, publications and then adapted to local conditions by vigorous experimentation (Pretty, 2002). Currently in the UK more than half the area is tilled land or managed grass and more than a quarter rough grass, marsh or moorland or land mostly used for grazing (RCEP, 1996). The detailed land use of the 18.3 million hectares of agricultural land in UK is shown in Fig 1 (DEFRA, 2014; Writtle, 2014).

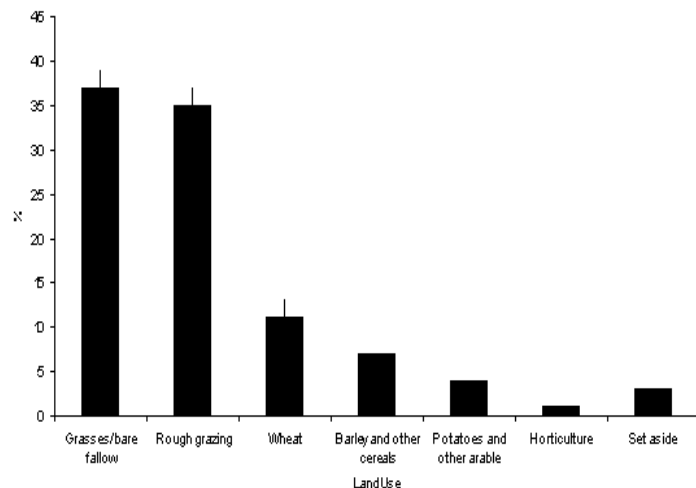


Fig 1. Detailed land use of agricultural land in UK (%).

Source (DEFRA, 2014)

Agricultural land use in UK

The current total agricultural area of the country including rough grazing is within 18.55 million ha, of which crops is 4.45 million ha, bare fallow is within 43,000 ha; total under tillage, 4.49 million ha; grass that is five years old and over excluding rough grazing, 4.43 million ha; set aside, 800,000 ha; other land and woodland, 801,000 ha (DEFRA, 2014; Writtle, 2014)

Crop Area in UK

The total crop area is 4.57 million ha, with total cereals within 3.25 million ha; wheat, 1.99 million ha; barley, 1.10 million ha; oats, 126,000 ha; rye and mixed corn, 9,000 ha and triticale, 14,000 ha. Other arable crops excluding potatoes have 993,000 ha, of which oilseed rape is within 357,000 ha; sugar beet (not for stockfeeding), 169,000 ha; hops, 2000 ha; peas for harvesting dry and field beans, 249,000 ha; linseed, 12,000 ha; other crops, 204,000 ha. Potatoes is within 158,000 ha; horticulture, 176,000 ha of which vegetables grown in the open is within 124,000 ha; orchard fruit, 26,000 ha; soft fruit, 9,000 ha; ornamentals, 15,000 ha and glasshouse crops, 2,000 ha (DEFRA, 2014; Writtle, 2014).



Fig 2. Map of UK showing the four countries (England, Scotland, Wales and Northern Ireland)

Labour force in agriculture in UK

The total regular whole time workers is within 75,000 persons; of which number of male is 65,000 and female, 11,000. The total regular part time workers is within 40,000 persons with male, 22,000 and female, 18,000. The seasonal or casual workforce is within 194,000 persons; with male, 46,000; female, 18,000; salaried managers, 13,000. The total farmers, partners and directors is within 356,000 persons; with 164,000 whole-time and 193,000 part-time. The grand labour force including farmers and their spouses is within 550,000 (DEFRA, 2014; Writtle, 2014).

Price indices for products and inputs in UK

Indices covering an aggregation of commodities were weighted averages with weights based on the values of output of the respective commodities in 2010 (where 2010 indices = 100). The indices reflect prices received by producers but exclude direct subsidies. It also covers the purchase and maintenance of capital items, but excludes stocks. The producer prices for agricultural products is within 78 of which crop products is 74.7; cereals, 57.2; root crops, 45.1; fresh vegetables, 103.7; fresh fruit, 110.1; seeds, 63.4; flowers and plants, 109; other crop products, 105.1; livestock and livestock products, 76.5; livestock for slaughter and export, 80.8; milk, 68.8; eggs, 84.3 and other livestock products, 70.1. The prices of agricultural inputs is within 101.9 of which those currently consumed in agriculture is within 100.2; livestock feedingstuffs, 80.8; seeds, 81.2; fertilizers and soil improvers, 99; plant protection products, 86.3; maintenance and repair of plant and machinery, 132.5; energy, lubricants, 117.2; maintenance and repair of buildings, 109.6; veterinary services, 100.2; general expenses, 119.5; contributing to agricultural investment, 104.7 and buildings, 124.1 (DEFRA, 2014; Writtle, 2014). For updated price index see December 2014 agricultural index published on 19th February, 2015 by DEFRA.

Commodity trends in UK

Wheat

The total area under wheat is within 1.99 million ha, with a yield of 8 t ha⁻¹, representing 16.05 million tonnes of harvested production; worth £1.490 million; with sales representing about £868,000; subsidies, £453,000; on farm use, £39,000; stocks, £131,000. The price for milling wheat is within £71 per tonne while feed wheat is within £63 per tonne. On supply and use

basis, production is within 16.053 million tonnes with imports from the EU within 745,000 tonnes and from the rest of the world within 495,000 tonnes. Exports to the EU is within 1.462 million tonnes and to the rest of the world, 270,000 tonnes. The total new supply is within 15.56 million tonnes; with increase in farm and other other stocks within 2.59 million tonnes. The total domestic uses is within 12.97 million tonnes of which flour milling is within 5.62 million tonnes; animal feed, 6.23 million tonnes, seed, 300,000 tonnes; other uses and waste, 806,000 tonnes. The production as % of total new supply for use in UK is within 103 and % home grown wheat in milling grist is within 85 (DEFRA, 2014; Writtle, 2014).

Barley

The total barley production area is within 1.10 million ha with yield of 5.62 t ha^{-1} ; representing a volume of 6.192 million tonnes; valued at £623 million of which sales is within £291 million, subsidies, £236 million; on farm use, £137 million and changes in stocks, £-40 million. The prices for malting barley is within £73 per tonne and feed barley is within £58 per tonne. On supply and use, out of a production of 6.19 million tonnes; imports from the EU is within 51,000 tonnes; the rest of the world is within 34,000 tonnes. Exports to the EU is within 811,000 tonnes; the rest of the world, 86,000 tonnes. Total new supply is within 5.38 million tonnes; change in farm and other stocks is within -283,000 tonnes. The total domestic uses is within 5.66 million tonnes of which brewing/distilling is within 1.95 million, animal feed, 3.51 million tonnes, seed, 160,000 tonnes and other uses and waste is within 43,000 tonnes. The production as % of total new supply for use in UK is within 115 (DEFRA, 2014, Writtle, 2014).

Total cereals

The area under cereals is within 3.25 million ha, with 23.11 million tonnes volume of harvested production valued at within £2.19 million. The supply and utilization figures show imports from the EU within 2.12 million tonnes and the rest of the world, 788,000 tonnes. The exports to the EU is within 2.42 million tonnes and the rest of the world, 357,000 tonnes. The total new supply is within 23.24 million tonnes. The increase in farm and other stocks is within 2.35 million tonnes, and total domestic uses is within 20.88 million tonnes. The production as % of total new supply for use in UK is within 99 (DEFRA, 2014; Writtle, 2014).

Oilseed rape

The area under oilseed rape is within 432,000 ha with yield of 3.33 t ha^{-1} ; volume of harvested production is within 1.44 million tonnes of which production not on set-aside land is within 357,000 ha; and yield of 3.49 t ha^{-1} from total production of 1.25 million tonnes. The production on set-aside land is within an area of 75,000 ha; with yield of 2.54 t ha^{-1} and total production of 191,000 tonnes. The value of production is within £294 million of which sales is within £201 million, subsidies, £81 million and changes in stocks is within £12 million. The imports from the EU is within 300,000 tonnes and from the rest of the world, 92,000 tonnes. The exports to the EU is within 114,000 tonnes and to the rest of the world, 50,000 tonnes. The total new supply is within 1.67 million tonnes, while the production as % of total new supply for use in UK is within 86 (DEFRA, 2014; Writtle, 2014).

Linseed

The area under linseed is within 13,000 ha with yield of 1.43 t ha^{-1} to volume of harvested production of 18,000 tonnes; of which the production not on set-aside land is within 31,000 ha, with yield of 1.23 t ha^{-1} and total production of within 16,000 tonnes. The production on set-aside land is within 1,000

ha with yield of 2.87 t ha^{-1} and total production of within 2,000 tonnes. The value of production is within £6 million of which sales is within £3 million, subsidies, £3 million and change in stocks, £0 million. The imports from the EU is within £1 million and from the rest of the world, £22 million. The exports to the EU is within £7 million and to the rest of the world, £0 million. The total new supply is within 34,000 tonnes, while the production as % of total new supply for use in UK is within 53 (DEFRA, 2014; Writtle, 2014).

Sugar beet and sugar

The area under sugar beet is within 169,000 ha with yield of 55.78 t ha^{-1} and a volume of harvested production within 9.43 million tonnes. The average market price is within £29 per tonne and value of production is within £272 million. The sugar content in % is within 17.7. The production of sugar is within 1.39 million tonnes of which imports from the EU is within 186,000 tonnes and the rest of the world, 1.12 million tonnes. The exports to the EU is within 104,000 tonnes and to the rest of the world, 383,000 tonnes. The production as % of total new supply for use in UK is within 63 (DEFRA, 2014; Writtle, 2014)

Peas and beans for stock feed

The area under peas for harvesting dry is within 68,000 ha with yield of 3.43 t ha^{-1} and volume of harvested production of within 233,000 tonnes. The value of production is within £18 million of which sales is within £18 million and subsidies is within £19 million. For field beans, mainly for stockfeed, the area is within 164,000 ha with yield within 3.85 t ha^{-1} and volume of harvested production of about 632,000 tonnes valued at £88 million of which sales is within £46 million and subsidies is within £42 million (DEFRA, 2014; Writtle, 2014).

Potatoes

The area under potatoes is within 159,000 ha of which early potatoes is covering 13,000 ha and maincrop is covering 146,000 ha. The yield of early potatoes is within 16.4 t ha^{-1} and maincrop is 42.3 t ha^{-1} . The volume of harvested production of early potatoes is within 6.37 million tonnes of which early potatoes is within 219,000 tonnes and maincrop is within 6.15 million tonnes. The end year stocks is within 3.58 million tonnes with value of production within £463 million of which sales is within £447 million, on farm seed use is within £13 million and change in stocks is within £3 million. The price average paid to registered producers for early potatoes is within £110 per tonne, maincrop potatoes, £81 per tonne and all potatoes is within £84 per tonne. The supply and use analysis show that total production is within 6.37 million tonnes. The supplies from the Channel Islands is within 46,000 tonnes. Imports is within 1.28 million tonnes of which the early from the EU is within 70,000 tonnes and the rest of the world, 95,000 tonnes. The maincrop from the EU is within 197,000 tonnes and from the rest of the world, 7,000 tonnes. The processed raw equivalent from the EU is within 865,000 tonnes and from the rest of the world, 13,000 tonnes. The seed from the EU is within 38,000 tonnes and from the rest of the world is within 0 tonnes. The exports is within 363,000 tonnes of which raw to the EU is within 131,000 tonnes and to the rest of the world, 5,000 tonnes. The processed raw equivalent to the EU is within 131,000 tonnes and to the rest of the world is within 23,000 tonnes. The seed to EU is within 59,000 tonnes and to the rest of the world is within 28,000 tonnes. The total new supply is within 7.34 million tonnes of which those used for human consumption including seed imports is within 0 tonnes; support buying is within 0 tonnes and chats, waste and retained stock feed is within 923,000 tonnes. The production as % of total new supply for use in the UK is within 87 (DEFRA, 2014; Writtle, 2014).

Must read masterpiece

The AUK Program, 24th June 2014 is a must read masterpiece on UK agriculture. It was sponsored by department for business, innovation and skills in collaboration with department for environment, food and rural affairs (defra), UK. Read the welcome and introduction by Dan Rogerson, Minister for water, forestry, rural affairs and resource management. Other topical issues include: prospects for the farming sector by Grant Davies, defra economic advisor, international evidence and analysis; implementation of the common agricultural policy by Matt Adey, defra head of international evidence and analysis; rural development through improved farming productivity by Karen Morgan, defra policy lead for agricultural growth and competitiveness; and Jonathan Stern, defra economic advisor, farming performance; agric tech by Dr Robert Bradburne, defra head of science for sustainable land management and livestock farming; prospects for UK agriculture by Peter Mills, Harper Adams University; global and UK consumer markets and the implications for agriculture by David Swales, agriculture and horticultural development board; current state and future prospects of defra analysis by Ian Lonsdale, defra head of farming statistics. For all other update on crop and livestock statistics and agricultural policies of the UK follow the shop in one stop link below (DEFRA, 2015).

Shop in one stop for all agricultural information in UK

Farmers weekly interactive covers news, weather, markets, classifieds, vacancies, events. Also contains links to other organizations including the agricultural register, the complete register of farming products and services (www.fwi.co.uk); Irish farmers interactive journal for current edition of the Irish farmers journal (www.farmerjournal.ie); Ministry of agriculture, fisheries and food for information about all aspects of agriculture, fisheries and food covered by MAFF, including research papers on topical issues (www.defra.gov.uk); ADAS for information on all areas of agriculture, under the crops section can be found management information (www.adas.co.uk); agricentre contains news, discussion, weather and agronomic tools (www.agricentre.co.uk); home grown cereals authority contains information about the HGCA, research work, UK and export markets and publications (www.hgca.co.uk); soil association contains press releases, events, news, details about the soil association, information about organic farming, fact sheets and publications (www.soilassociation.org); food and agricultural organization of the United Nations contain information on agricultural statistics (www.fao.org); food and farming education service contains fact sheets covering all aspects of farming, including farm buildings, machinery, animal genetics and organic farming (www.cla.org.uk); linking the environment and farming (LEAF) contains integrated crop management and self audits (www.leafuk.org); farming and wildlife advisory group contains information about environmental responsible farming (www.fwag.org.uk); British Potato Council contains information about the potato council and potatoes (www.potato.org.uk); potatoes-on-line contains information on varieties, agronomy, management and markets (www.spud.co.uk); British Crop Protection Council for details about the BCPC, news and event and publications (www.bcpc.org); pesticides safety directorate for information about residues in food, product information, that is specific sprays, including what they can be used on and when they can be used, off label database and information about LERAPS plus other useful information (www.pesticides.gov.uk); national buffer council contains information about buffer zones including environmental and

economic effects (www.buffercouncil.org); fertilizer manufacturers association for publications, statistics, and other useful information about major nutrients, including their use to plants (www.fina.org.uk); Irish fertilizer industries for links to many useful sites in Ireland plus other useful information (www.ifi.ic); hydro agri (UK) Ltd contains news, fertilizer advice, weather, topical advice and information on hydro-precise and precision fertilizer application (www.hydroagri.co.uk); Cargill Ag horizons for news, markets, agronomics, products and services (www.cargill.com); Zeneca crop production for information, grain prices, weather and agronomy, including disease, blight and aphid tracker showing infestation levels, updated weekly, with aphid and grass weed finder, a guide to identifying aphids and grass weeds (www.zeneca-crop.co.uk); agriculture search engine (www.agriserve.com); farm shop directory for farms shops markets around the UK (www.farmshop.net); farm gate (www.farmgate.co.uk); farming on line for various information (www.farmline.com); dalgety (www.dalgety.co.uk); BASF (www.basf.com); aventis (www.aventis.co.uk); bayer (www.bayer.co.uk); Monsanto (www.farmsource.com); terra nitrogen (UK) Ltd (www.teranitrogen.co.uk); Some of the sites listed require you to register before you are allowed access to certain information (Writtle, 2014; DEFRA, 2014)..

Conclusion

The English generations of eight thousand years ago underestimated the English generation of the 21st century. Likewise, the 21st century English generation can never underestimate the next 8000 years generation. What manner of agriculture and agricultural landscape. Will there be farming in sea and ocean floor, in space, in the moon, stars and the sun. What manner of agriculture, crops, labour, price and land use. What type of soil and climate shall we have then. Shall there be still United Kingdom with four countries, European Union. Where will their next empire extend to. What type of world. Will there be a world of one citizen. World without borders or polarization. World free of nuclear proliferation and warheads. What manner of citizens and leaders shall the world hold by the next 8000 of English culture and diversity. Will global warming start and end at the Greenwich as the centre of the world. What implications for humanity. To me only God has the magic key and he lives after the sun but present everywhere in all realm and rule over nations and principalities. Since English scientist have failed to produce human blood, semen and egg irrespective of their feat in invitro-fertilisation, cloning, genetic modifications and high techs the solution still lies on God by atheists, Christians, Muslims, Buddhists, Sikhs, pagans and those who believe only in themselves. Nevertheless, Igboji (2015) classification of English agriculture into prehistoric, historic, agricultural revolution, post agricultural revolution, green planet and post green planet is divines gift of appreciating the country that shaped the destiny of the world in the course of getting their doctorate degree in the most famous university of the world – University of Essex; where God revealed the world of the next eight thousand years through my pet foundation – World Citizens in Pain, Suffering, Labour with Dignity, Peace and Freedom willed to shepherd of the Apostolate of Vatican City.

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