

Past-paper walk-through

Challenges of Contemporary Agriculture ■ 5.11

eXercise

Questions in this set

- 2023 Set 1 Q2

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

Question 2

2023 Set 1 ■ Q2

One stimulus.

PER CAPITA PRODUCTION OF STAPLE FOOD CROPS IN HEARTH-OF-DOMESTICATION COUNTRIES

Country	Corn/maize (lb per capita)	Potato (lb per capita)	Rice (lb per capita)	Yam (lb per capita)	Cassava/manioc (lb per capita)
Brazil	1,056	39	108	3	183
China	412	145	333	0	52
Mexico	471	31	4	0	0
Nigeria	121	15	93	549	618
Peru	107	362	216	0	13

Question 2

Hearths of domestication: corn/maize = Mexico; potato = Peru; rice = China and Mali; yam = Niger River basin; cassava = Amazon River basin. Source: Food and Agriculture Organization of the United Nations.

Staple food crops provide most of the carbohydrates in people's diets, and some staples are also used as animal feed or in the distillation of ethanol. Cassava is a root crop (tuber) that is the source of farinha, tapioca, and the pearls in bubble tea.

- (a)** Describe the concept of an early hearth of domestication.
- (b)** Identify the crop listed in the table that has diffused the least from its hearth of domestication to the countries listed in the table.
- (c)** Explain how food preferences can be a culture trait.
- (d)** Explain how the Columbian Exchange contributed to a crop's diffusion beyond its hearth of domestication.

Question 2

- (e) Explain how the data in the table support the concept of a crop's consumption pattern being the result of globalization.
- (f) Explain why a crop may be farmed intensively in a less developed country and be farmed extensively in a more developed country.
- (g) Explain ONE way the global supply chain links crops such as those listed in the table to consumers in other countries.

Solution 2

(a)

Mark scheme

- Describe an early hearth of domestication (1 point) — accept any: a location where new (agricultural) practices develop and/or from which they spread; a place where a plant or animal was first domesticated; sites of early civilizations that domesticated plants/animals (e.g., Fertile Crescent, Indus Valley, SE Asia, China, Andean Highlands, Amazonia, Central America); an ancient society whose farmers converted wild species into domesticated varieties over time via selective breeding.

Solution 2

(b)

Mark scheme

- Identify the least-diffused crop (1 point): Yam (yams) — it shows high production only at/near its Niger River basin hearth (Nigeria) and near-zero production in the other countries listed.

Solution 2

(c)

Mark scheme

- Explain food preference as a culture trait (1 point) — accept any: many foods have distinct ingredients/preparations indicative of a specific culture group; culture groups identify with national dishes representing their food culture; foods contain ingredients/crops local to a culture's region; foods are part of a way of life or are forbidden, as expressed in belief systems, religion, artifacts, calendars, or holidays.

Solution 2

(d)

Mark scheme

- Explain the Columbian Exchange's role in crop diffusion (1 point) — accept any: it relocated crops between world regions through conquest, ecological imperialism, colonization, and/or trade routes; it moved crops due to changing food preferences, cultural assimilation, or changing agricultural practices; it may have accidentally/unintentionally introduced a crop beyond its hearth (e.g., seeds as "stow-aways" in cargo).

Solution 2

(e)

Mark scheme

- Explain how the data show globalization of consumption (1 point): high per-capita production/consumption of a crop far from its hearth (e.g., Brazil produces 1,056 lb of corn per capita; rice grown/consumed outside China) shows the crop is globalized. Accept links to globalized food culture/media/preferences; multicultural societies and global migration; globalized trade/transport (free-trade or neoliberal policies, comparative advantage, containerization, bulk shipping); or a growing global middle class of consumers — each evidenced by production away from the hearth.

Solution 2

(f)

Mark scheme

- Explain intensive (LDC) vs extensive (MDC) farming (1 point) — accept any: LDC subsistence/intensive farming on small plots to feed a household vs MDC extensive/commercial farming on large farms for a company's consumers; LDC intensive manual labor (hand tools, animal power) vs MDC mechanized, low-labor extensive production; LDC farmers lack capital/equipment/inputs so rely on intensive human labor while MDC farmers can invest in extensive inputs; LDC farms use local resources to feed families/communities while MDC farms exploit economies of scale for large populations.

Solution 2

(g) Mark scheme

- Explain ONE global-supply-chain link (1 point) — accept any: crops are transported internationally to consumers via storing, processing, packaging, wholesaling, and/or retailing; crops feed the global restaurant/fast-food industry, cultivated/processed in one country then distributed to restaurants in another; growing global consumption of frozen/dried/canned/dehydrated foods means crops are processed into preserved forms and distributed abroad for long-term storage; crops are processed into other forms (e.g., corn for ethanol or animal feed) then shipped to wholesalers, retailers, or consumers in other countries.