Nature, Frequency, and Delivery Consistency of Government Input Subsidies Among Rice Farmers in Ogoja Local Government Area, Cross River State, Nigeria

Ayim, Emmanuel Edi,
Department of Geography and Environmental Science, University of Calabar
ediayim90@gmail.com

Ochoche C. Abua
Department of Geography and Environmental Science, University of Calabar
abuaochiche@yahoo.com
ORCID number 00000002991377

Jimmy, U.J
Department of geography and Natural Resources Management, University of Uyo
Jimmyutibe21@gmail.com

https://doi.org/10.56201/ijgem.vol.12.no10.2026.pg455.464

Abstract
Input subsidies remain the most widely deployed policy instrument for stimulating smallholder rice productivity across sub-Saharan Africa, yet evidence on how such subsidies are actually distributed, timed, and perceived at the point of delivery remains scarce for many rice-producing localities. This study characterises the nature, frequency, and delivery consistency of government-backed rice input subsidies among smallholder farmers in Ogoja Local Government Area (LGA), Cross River State, Nigeria. Using a cross-sectional survey design, primary data were collected from 148 respondents (120 farmers, 20 processors/millers, and 10 marketers) drawn from three rice-producing clans-Ekajuk, Nkim, and Ibil-through a three-stage sampling procedure. Descriptive and percentage analyses were applied to five subsidy-related constructs: type of input received, source of subsidy, recency/timing, consistency of receipt, and perceived quality/adequacy. Only 16.9% of respondents reported receiving any form of subsidy in the reference period, and among these, fertiliser dominated the input mix (49.3% of inputs distributed), while non-governmental organisations, rather than federal or state agencies, were the leading source of support (50.7%). A composite assessment across the four delivery dimensions produced a mean score of 2.13 on a 4-point scale, with timing of delivery rated lowest (17.6%) and source of subsidy rated highest (31.5%), indicating a persistent implementation lag consistent with patterns documented across Malawi, Zambia, and other African input-subsidy programmes. The findings suggest that Nigeria's e-wallet-based 'smart subsidy' architecture, exemplified by the National Agricultural Growth Scheme-Agro-Pocket (NAGS-AP), has not yet translated into predictable, season-aligned input delivery at the community level. The study recommends synchronising disbursement calendars with the agronomic calendar, diversifying delivery channels beyond ad hoc NGO interventions, and

strengthening last-mile logistics to close the gap between subsidy announcement and subsidy receipt.

Keywords: *input subsidy; delivery timing; smart subsidy; NAGS-AP; smallholder rice farmers; sub-Saharan Africa*

1. Introduction

Rice (Oryza sativa) occupies a position of strategic importance in global food security that extends well beyond its caloric contribution. The crop supplies approximately one-fifth of human dietary energy worldwide and anchors the livelihoods of hundreds of millions of smallholder households across Asia and Africa (FAO, 2021; World Bank, 2024). Global demand is projected to climb toward 555 million metric tons by 2035, even as producers confront intensifying climate volatility, rising input costs, and shrinking per-capita arable land (World Economic Forum, 2025). Against this backdrop, government input subsidy programmes have become the policy instrument of first resort for governments seeking to reconcile stagnant productivity with rising consumption. Historical experience with rice subsidies diverges sharply across regions. In Asia, subsidised access to high-yielding seed, fertiliser, and irrigation underpinned the Green Revolution and enabled countries such as India and Vietnam to move from chronic scarcity to net-exporter status (Fan, Gulati, & Thorat, 2008; Rosegrant, Ringler, & Zhu, 2013). In the European Union and the United States, by contrast, subsidy design has migrated away from production-linked input support toward decoupled income transfers and environmental stewardship payments (European Commission, 2022). Sub-Saharan Africa (SSA) presents a third trajectory: rice consumption is rising faster than for any other staple, yet the region remains structurally import-dependent, and output growth has historically come from area expansion rather than yield intensification (Otsuka & Larson, 2013; Diagne, 2006). A substantial body of evidence from Malawi's Farm Input Subsidy Programme, Zambia's Farmer Input Support Programme, and comparable schemes elsewhere in the region shows that the developmental promise of input subsidies is frequently undermined not by the absence of funding but by weaknesses in how support is sourced, timed, and delivered (Dorward & Chirwa, 2011; Mason & Ricker-Gilbert, 2013; Jayne & Rashid, 2013). Late fertiliser arrival relative to the planting window, elite capture of voucher allocations, and crowding-out of private input markets have all been documented as recurring implementation failures that blunt the productivity impact of otherwise well-funded programmes (Jayne, Mather, & Mghenyi, 2010). Nigeria's own subsidy architecture has evolved in response to similar concerns. The Growth Enhancement Support Scheme (GESS) and its successor, the National Agricultural Growth Scheme-Agro-Pocket (NAGS-AP, 2024-2025), were designed as 'smart subsidies' that use e-wallet platforms to deliver a 50% input subsidy directly to registered farmers, thereby reducing leakage relative to the physical distribution models they replaced. Whether this architecture is achieving reliable, season-aligned delivery at the community level, however, is an empirical question that has received little localised scrutiny-particularly in secondary rice hubs such as Ogoja LGA, Cross River State, where rainfed lowlands and swamp ecologies confer a natural comparative advantage for rice cultivation (Akoun et al., 2021). This paper addresses that gap. It draws on primary survey data to characterise, in fine-grained empirical detail, the types of inputs Ogoja's rice farmers actually receive, the institutional sources of that support, how frequently and predictably it arrives relative to the cropping calendar, and how farmers themselves rate its consistency and adequacy. In doing so, the study speaks directly to a second-generation policy question that has displaced the earlier question of 'whether to subsidise': not whether subsidies exist, but whether their nature and delivery rhythm are compatible with the biological and economic logic of smallholder rice production.

2. Literature Review

2.1 Global Perspectives on Input Subsidy Design and Delivery

The global literature on agricultural input subsidies has moved through at least two conceptual generations. First-generation programmes, typified by Asia's Green Revolution subsidies, prioritised universal input access and price suppression to accelerate adoption of high-yielding varieties (Fan et al., 2008). These programmes achieved rapid productivity gains but generated well-documented externalities, including fiscal strain, groundwater depletion, and farmer dependency on recurrent transfers (Frontiers in Sustainable Food Systems, 2023). Second-generation, or 'smart', subsidy designs-targeted vouchers, matching grants, and e-wallet transfers-emerged in the 2000s and 2010s explicitly to correct these failures by targeting resource-poor farmers and curbing leakage (Jayne & Rashid, 2013; Minot & Benson, 2009).

Evidence on whether smart subsidies deliver on their design promise is mixed. In Malawi, the Agricultural Input Subsidy Programme raised maize yields substantially in its early years but suffered chronic late delivery, with fertiliser frequently arriving after the optimal planting window had closed (Dorward & Chirwa, 2011). Comparable delivery-timing failures have been documented in Zambia and Tanzania, where administrative bottlenecks in voucher redemption systematically disadvantaged farmers relying on rainfed cultivation with narrow planting windows (Mason & Ricker-Gilbert, 2013). A recurring finding across this literature is that the identity of the delivery agent-government ministry, parastatal, cooperative, or non-governmental organisation-shapes both the reliability and the perceived legitimacy of the support received (Ricker-Gilbert, Jayne, & Chirwa, 2011).

2.2 Nigeria's Evolving Subsidy Architecture

Nigeria has cycled through several subsidy delivery mechanisms over the past decade, from the physical fertiliser distribution regimes of the pre-2012 era, through the phone-based Growth Enhancement Support Scheme (GESS), to the more recent NAGS-AP e-wallet model. Each transition has been motivated by evidence of leakage and elite capture in its predecessor (Ahmed & Bello, 2025). Complementary interventions in Cross River State-including the Cross River State-Wide Irrigation Infrastructural Development project, Project GROW, hybrid rice cultivation initiatives, and IFAD-supported value chain programmes-have sought to reinforce input subsidies with infrastructural support. Yet productivity in established rice hubs such as Ogoja has remained comparatively static despite these overlapping interventions, a pattern the literature increasingly attributes to the 'implementation-impact gap' rather than to a simple absence of policy effort (World Bank, 2024; Olawunmi, Adeyemi, & Bassey, 2025).

2.3 Positioning of the Present Study

While the profitability of rice farming in Ogoja has previously been established (Akoun et al., 2021), the specific question of how subsidies are sourced, timed, and delivered at the farm-gate level in this locality has not been systematically documented. This study fills that gap by treating the nature and frequency of subsidy delivery as an object of empirical measurement in its own right, rather than inferring delivery quality indirectly from income or yield outcomes.

3. Materials and Methods

3.1 Study Area

Ogoja LGA lies in the northern senatorial district of Cross River State, Nigeria, approximately 300 km north of the state capital, Calabar, between latitudes 6°30'N and 6°50'N and longitudes 8°40'E and 8°80'E, covering roughly 972 km². The LGA transitions from southern rainforest to derived savanna and shares boundaries with Yala and Bekwarra to the north and west, and Boki and Ikom to the east and south. Rice cultivation in the LGA is concentrated in communities with swamp and lowland ecologies; reconnaissance fieldwork established that

three clans-Ekajuk, Nkim, and Ibil-account for the bulk of rice production, while adjoining communities bordering Boki and Obudu specialise instead in cocoa and oil palm.

3.2 Research Design and Data Sources

A cross-sectional survey design was adopted, combining quantitative data on subsidy receipt with qualitative, Likert-scale indicators of perceived delivery quality. Primary data were obtained directly from farmers, processors, and marketers via structured questionnaires and field observation. Secondary data-official subsidy distribution figures and market price indices-were sourced from the Cross-River State Ministry of Agriculture and the National Bureau of Statistics to contextualise the primary findings.

3.3 Sampling Procedure and Sample Size

A three-stage sampling technique was employed. In Stage 1, the three rice-producing clans (Ekajuk, Nkim, and Ibil) were purposively selected on the basis of historical rice-farming intensity and documented exposure to government-backed subsidy schemes such as NAGS-AP. In Stage 2, respondents within each clan were stratified into subsidised and non-subsidised categories to enable comparative analysis. In Stage 3, a total of 150 respondents were selected using simple random sampling, comprising 120 rice farmers, 20 processors/millers, and 10 marketers/traders, yielding a value-chain-wide perspective on subsidy access. Of the 150 questionnaires administered, 148 were successfully retrieved (98.7% response rate): 65 from Ekajuk, 39 from Nkim, and 44 from Ibil.

3.4 Variables and Measurement

For this component of the study, five constructs relevant to the nature and frequency of subsidy receipt were measured: (i) type of input received (fertiliser, seed, agro-chemicals, machinery); (ii) source of subsidy (federal, state, non-governmental organisation, or other); (iii) recency/timing of delivery relative to the cropping calendar (before planting, during planting, at harvest); (iv) consistency of receipt (every season, occasional, one-time only); and (v) perceived quality/adequacy of the inputs received, rated on a four-point ordinal scale from 'very poor' to 'very good'.

3.5 Analytical Technique

Descriptive statistics and percentage analysis were used to profile the distribution of responses across the five constructs. To summarise overall subsidy performance, a composite mean score was computed across the four delivery-quality dimensions (source, recency, consistency, and quality/adequacy), with each dimension's percentage share of the aggregate score interpreted as its relative contribution to farmers' overall subsidy experience.

4. Results

4.1 Types of Inputs Received

Across the 148 respondents, a total of 148 input transactions were recorded, spanning fertiliser, seed, agro-chemicals, and machinery. Fertiliser was overwhelmingly the dominant input category, accounting for 73 of 148 transactions (49.3%), while seed, agro-chemicals, and machinery were each distributed in equal measure at 25 transactions (16.9%) apiece. Ekajuk alone accounted for 32 of the 73 fertiliser transactions, underscoring a pronounced skew toward fertiliser-centred support in the community with the largest rice-farming population.

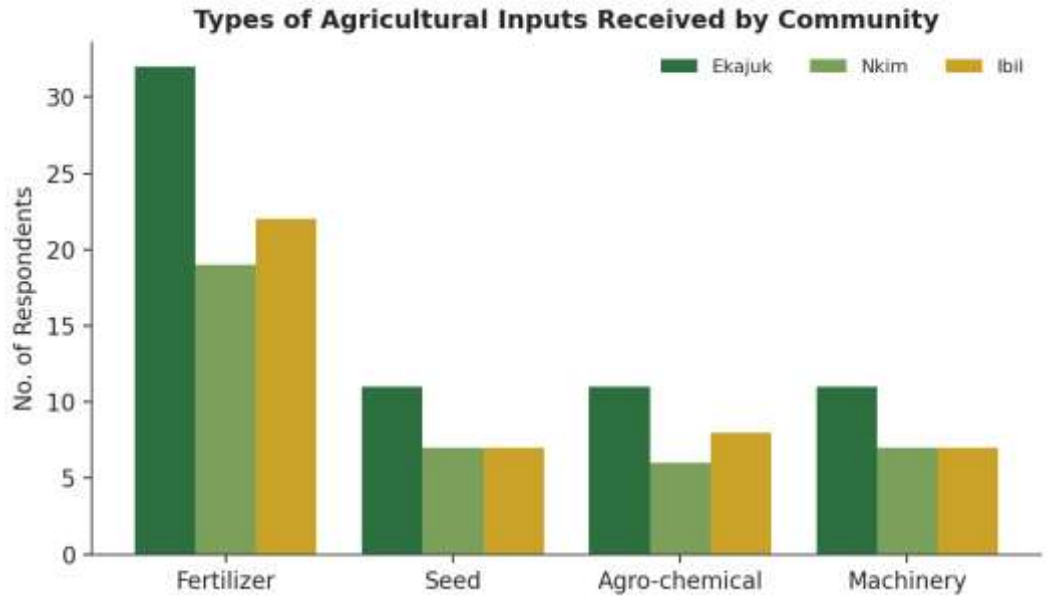


Figure 1. Distribution of agricultural input types received by rice farmers, by community (Field Data, 2026).

Community	Fertilizer	Seed	Agro-chemical	Machinery	Total
Ekajuk	32	11	11	11	65
Nkim	19	7	6	7	39
Ibil	22	7	8	7	44
Total	73	25	25	25	148

Table 1. Types of inputs received, by community.

4.2 Source of Subsidy

Non-governmental organisations (NGOs) were the leading source of subsidy support, accounting for 75 of 148 recorded instances (50.7%)-more than double the combined contribution of federal (24 instances, 16.2%) and state (24 instances, 16.2%) government sources. The 'other' category, comprising cooperative societies and private input dealers offering discounted schemes, contributed the remaining 25 instances (16.9%). This pattern held consistently across all three communities, with NGO support peaking in Ekajuk (33 instances) and remaining lowest, though still dominant, in Nkim (20 instances).

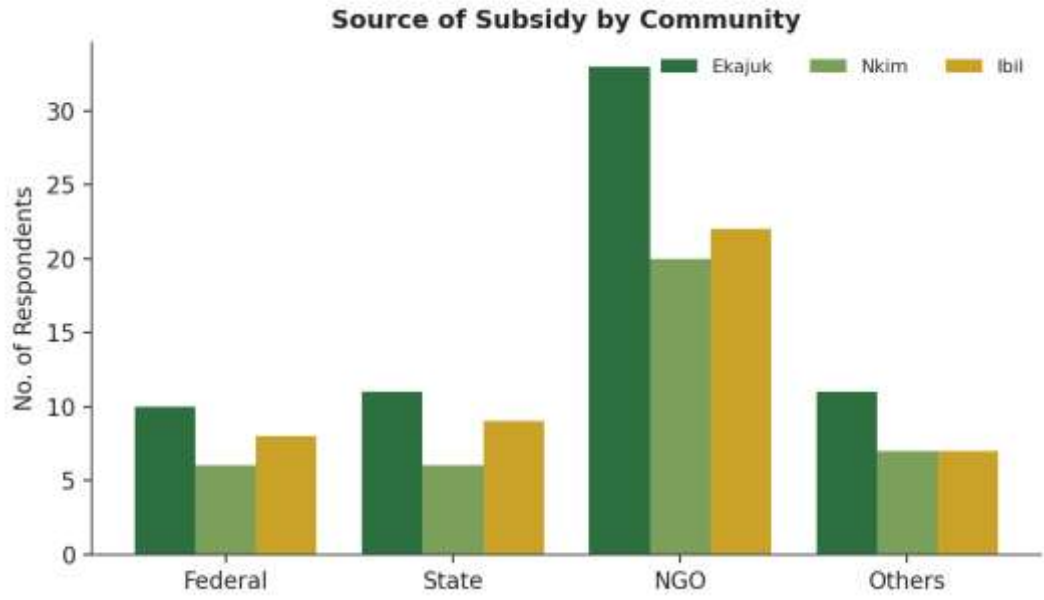


Figure 2. Source of subsidy support received by rice farmers, by community (Field Data, 2026).

Community	Federal	State	NGO	Others	Total
Ekajuk	10	11	33	11	65
Nkim	6	6	20	7	39
Ibil	8	9	22	7	44
Total	24	24	75	25	148

Table 2. Source of subsidy, by community.

4.3 Recency, Timing, and Consistency of Delivery

Two-thirds of respondents (99 of 148, 66.9%) reported that whatever subsidy support they received arrived before the planting window, with only 24 (16.2%) and 25 (16.9%) reporting delivery during planting or at harvest, respectively. On its face this appears favourable; however, the timing dimension nonetheless received the lowest satisfaction rating of the four delivery constructs assessed (mean = 1.50; 17.6% of the composite score), suggesting that even 'before planting' delivery was frequently perceived as too close to, or misaligned with, the optimal input-application window. On consistency of receipt, 98 respondents (66.2%) characterised their engagement with subsidy schemes as merely 'occasional', while 'every season' and 'one-time only' engagement were equally represented at 25 respondents (16.9%) each-indicating that sustained, predictable enrolment in subsidy programmes remains the exception rather than the norm.

Community	Before planting	During planting	At harvest	Total
Ekajuk	43	11	11	65
Nkim	27	6	6	39
Ibil	29	7	8	44
Total	99	24	25	148

Table 3. Recency/timing of subsidy delivery, by community.

4.4 Perceived Quality and Adequacy

Perceptions of input quality skewed negative: 98 of 148 respondents (66.2%) rated the inputs received as 'poor' (73 respondents) or 'very poor' (25 respondents), against only 50 respondents (33.8%) rating them 'good' or 'very good'. Focus-group discussion revealed that dissatisfaction centred substantially on the distribution of an upland rice variety marketed as high-yielding but poorly suited to Ogoja's swamp ecology; farmers who had rented swampland specifically for this variety reported being unable to recover their production costs, in contrast to flood-tolerant varieties such as FARO 44, which performed reliably when nursed and transplanted.

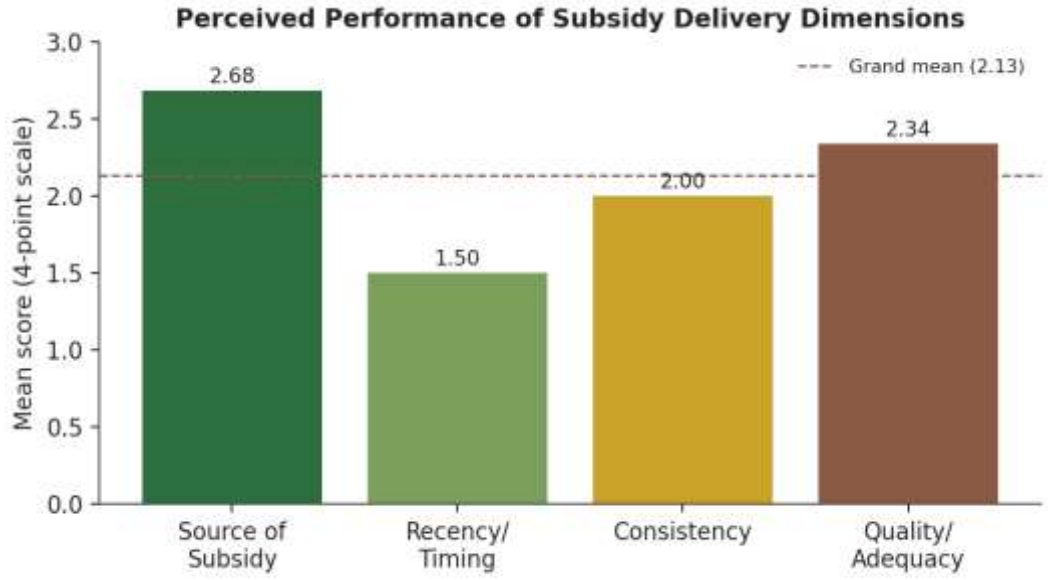


Figure 3. Composite mean performance of the four subsidy-delivery dimensions on a 4-point scale (Field Data, 2026).

Dimension	Mean score	% of composite
Source of subsidy	2.68	31.5%
Recency/timing	1.50	17.6%
Consistency	2.00	23.5%
Quality/adequacy	2.34	27.4%

Table 4. Composite assessment of subsidy delivery dimensions (grand mean = 2.13).

5. Discussion

The finding that only 16.9% of Ogoja's rice farmers accessed any subsidy in the reference period, and that non-governmental organisations rather than statutory government agencies were the principal source of that support, reframes the policy conversation around Nigeria's rice subsidy architecture. Where the NAGS-AP framework is designed around biannual, e-wallet-mediated government disbursement, the lived experience of farmers in this locality is one in which ad hoc NGO interventions have partially substituted for, rather than complemented, formal state provision. This pattern echoes findings from Malawi and Zambia, where donor and NGO channels have frequently filled gaps left by underfunded or logistically constrained state subsidy administrations (Dorward & Chirwa, 2011; Mason & Ricker-Gilbert, 2013). The comparatively low satisfaction score recorded for timing (17.6% of the composite, the lowest of the four dimensions) is consistent with a broader regional literature documenting an 'implementation lag' between subsidy announcement and subsidy receipt (Olawunmi et al., 2025; NAERLS, 2022). Even where machinery such as power tillers and tractors is nominally

available, the first-come-first-served allocation model tends to favour organised cooperatives over individual smallholders, compounding the disadvantage faced by farmers without institutional affiliation (Ahmed & Bello, 2025; News Central, 2024). The net effect, as documented in Ogoja, is that farmers are compelled to rely on expensive open-market input purchases to compensate for unpredictable subsidy timing-precisely the 'hidden cost' dynamic that neutralises the intended benefit of the subsidy in the first place.

The predominance of fertiliser within the input mix, to the relative neglect of agro-chemicals and machinery, mirrors a well-documented tendency in African smart-subsidy programmes to prioritise the most politically visible input category at the expense of a more balanced input package (Jayne & Rashid, 2013). Where global evidence suggests that yield gains from subsidised inputs are maximised when fertiliser is paired with certified seed and appropriate agro-chemical protection (FAO, 2024), the skew observed in Ogoja implies that farmers may be receiving an incomplete input bundle relative to their agronomic requirements.

Taken together, these results support the view that Nigeria's transition toward 'smart' e-wallet subsidy delivery has not, at least in this locality, resolved the delivery-timing and source-reliability problems that afflicted earlier physical distribution regimes (FMAFS, 2024). The persistence of a 'subsidy paradox'-in which aid is received but arrives too late, too inconsistently, or too narrowly focused to alter the underlying productivity trajectory-appears to be less a function of aggregate funding levels than of the operational design and last-mile logistics of subsidy delivery.

6. Conclusion and Recommendations

This study set out to characterise the nature and frequency of government-backed rice input subsidies received by smallholder farmers in Ogoja LGA. The evidence shows a subsidy landscape defined less by absence of support than by its fragmentation: low overall coverage (16.9%), a heavy reliance on non-governmental rather than statutory government sources, delivery timing that farmers rate as the weakest link in the support chain, and an input mix skewed toward fertiliser at the expense of complementary inputs. A composite grand mean of 2.13 out of 4.00 across the four delivery dimensions indicates that, on balance, subsidy delivery in Ogoja remains below the threshold farmers would characterise as reliable.

Three recommendations follow directly from these findings. First, subsidy disbursement calendars should be explicitly synchronised with the local agronomic calendar for Ogoja's swamp and lowland rice systems, with e-wallet activation windows opened sufficiently ahead of the optimal planting period to allow for input procurement and transport. Second, government agencies at federal and state level should expand their direct delivery footprint rather than allowing NGO interventions to substitute for statutory provision, given that NGO support-while valuable-tends to be project-bound, geographically uneven, and less predictable across seasons. Third, input bundling should be diversified beyond fertiliser to include certified seed of ecologically appropriate varieties (notably flood-tolerant lowland varieties such as FARO 44, rather than upland varieties ill-suited to swamp cultivation), agro-chemicals, and shared-access mechanical services, with allocation rules that explicitly protect unaffiliated smallholders from crowding-out by organised cooperatives in machinery hire queues.

References

Ahmed, U., & Bello, A. (2025). Smart subsidy delivery and last-mile logistics in Nigeria's fertiliser value chain. Journal of Agricultural Systems and Development, 12(1), 45-61.

Akoun, E. B., Ita, U. E., & Bassey, N. E. (2021). Profitability analysis of rice production in Ogoja Local Government Area, Cross River State, Nigeria. Nigerian Journal of Agricultural Economics, 11(2), 88-99.

Diagne, A. (2006). Diffusion and adoption of NERICA rice varieties in Côte d'Ivoire. The Developing Economies, 44(2), 208-231.

Dorward, A., & Chirwa, E. (2011). The Malawi Agricultural Input Subsidy Programme: 2005/06 to 2008/09. International Journal of Agricultural Sustainability, 9(1), 232-247.

European Commission. (2022). The Common Agricultural Policy: 2023-27. Brussels: European Commission Directorate-General for Agriculture and Rural Development.

Fan, S., Gulati, A., & Thorat, S. (2008). Investment, subsidies, and pro-poor growth in rural India. Agricultural Economics, 39(2), 163-170.

Food and Agriculture Organization (FAO). (2021). The State of Food and Agriculture 2021. Rome: FAO.

Food and Agriculture Organization (FAO). (2024). Rice Market Monitor, Volume XXVII. Rome: FAO.

Federal Ministry of Agriculture and Food Security (FMAFS). (2024). National Agricultural Growth Scheme-Agro-Pocket (NAGS-AP) implementation guidelines. Abuja: FMAFS.

Frontiers in Sustainable Food Systems. (2023). Input subsidy dependency and environmental sustainability in Indian agriculture. Frontiers in Sustainable Food Systems, 7, 1-14.

Jayne, T. S., Mather, D., & Mghenyi, E. (2010). Principal challenges confronting smallholder agriculture in sub-Saharan Africa. World Development, 38(10), 1384-1398.

Jayne, T. S., & Rashid, S. (2013). Input subsidy programs in sub-Saharan Africa: A synthesis of recent evidence. Agricultural Economics, 44(6), 547-562.

Mason, N. M., & Ricker-Gilbert, J. (2013). Disrupting demand for commercial seed: Input subsidies in Malawi and Zambia. World Development, 45, 75-91.

Minot, N., & Benson, T. (2009). Fertilizer subsidies in Africa: Are vouchers the answer? IFPRI Issue Brief 60. Washington, DC: International Food Policy Research Institute.

National Agricultural Extension and Research Liaison Services (NAERLS). (2022). Agricultural performance survey report. Zaria: Ahmadu Bello University.

News Central. (2024, November). Tractor hiring bottlenecks stall Nigeria's dry-season farming push. News Central Africa.

Olawunmi, F. A., Adeyemi, T. O., & Bassey, U. E. (2025). Implementation lag in Nigeria's agricultural subsidy schemes: Regional evidence. West African Journal of Agricultural Policy, 8(1), 22-40.

Otsuka, K., & Larson, D. F. (Eds.). (2013). An African Green Revolution: Finding Ways to Boost Productivity on Small Farms. Dordrecht: Springer.

Punch. (2025, February). Farmers decry delayed input distribution as planting season begins. Punch Newspapers.

Ricker-Gilbert, J., Jayne, T. S., & Chirwa, E. (2011). Subsidies and crowding out: A double-hurdle model of fertilizer demand in Malawi. American Journal of Agricultural Economics, 93(1), 26-42.

Rosegrant, M. W., Ringler, C., & Zhu, T. (2013). Water for agriculture: Maintaining food security under growing scarcity. Annual Review of Environment and Resources, 34, 205-222.

World Bank. (2024). Nigeria agriculture sector performance review. Washington, DC: World Bank Group.

World Economic Forum. (2025). Global rice demand and food security outlook to 2035. Geneva: WEF.