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Conservation Farming Unit
CONSERVATION FARMING & CLIMATE SMART AGRICULTURE

RAPID APPRAISAL OF SUBSIDISED INPUT USE, CONSERVATION AGRICULTURE ADOPTION AND FARMING PRACTICES

DECEMBER 2025


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Acknowledgements

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Executive Summary

This rapid appraisal assessed the smallholder production outcomes, access to subsidized inputs, timing and sharing of inputs, gender dimensions of farming, and the status of payments from the Food Reserve Agency (FRA) to understand key constraints affecting agricultural productivity and livelihoods. The findings show that while government support mechanisms such as the Farmer Input Support Programme (FISP) and FRA play a central role in smallholder agriculture, their effectiveness is significantly undermined by delays, limited integration, and structural implementation challenges.

Average maize yields were substantially higher than legume yields, reflecting both crop prioritisation and input allocation patterns. Farmers who combined access to subsidised inputs with adoption of Conservation Agriculture (CA) achieved consistently higher maize yields than those relying on subsidies alone, demonstrating that agronomic practices are critical complements to input support. However, access to subsidized inputs remains narrowly focused on fertilizer and maize seed, with very limited access to herbicides, pesticides, and legume seed, constraining crop diversification and effective CA implementation.

Farmer Category	Mean Yield (tons/ha)				
	Maize	Soyabean	Cowpeas	G/nuts	Mixed beans
Subsidized +CA adopter	3.34	0.60	0.31	0.51	1.06
Non Subsidized + CA adopter	3.25	0.51	0.24	0.50	0.18
Subsidized + Non CA adopter	2.44	0.29	0.08	0.40	0.69
Non Subsidized + Non CA adopter	2.55	0.61	0.07	0.57	0.17

The timing of input delivery emerged as a major constraint. Most households received subsidized inputs in November and December, with some receiving inputs as late as March and April, well beyond the optimal planting window. These delays reduce the effectiveness of inputs, force late planting, and increase production risk, particularly under increasingly variable climatic conditions. Input sharing within cooperatives was widespread, driven

largely by insufficient quantities and group-based allocation mechanisms, further diluting per-household input intensity and limiting yield gains.

Market-related constraints compound these challenges. A large majority of households had not received payment from FRA at the time of the appraisal, and among those who had been paid, payments were concentrated late in the year. Delayed FRA payments directly affected farmers' ability to procure seed and fertilizer for the subsequent season, reinforcing a cycle of delayed input use and reduced productivity. Gender-disaggregated results show minimal differences in access to inputs, with yield variations largely crop-specific rather than driven by gender-based exclusion.

Overall, the findings indicate that timeliness, coordination, and integration across input and output support systems are critical bottlenecks in improving smallholder productivity and resilience. Addressing these challenges will require strengthening delivery systems, aligning institutional processes, and embedding climate-smart agronomic practices within existing programmes.

Key recommendations include: (i) formally integrating Conservation Agriculture into FISP through aligned input packages and extension support; (ii) ensuring timely delivery of subsidized inputs before the planting season; (iii) Strengthen incentives, extension messaging, and default package options to encourage greater redemption of herbicides, pesticides, and legume seeds, particularly to support effective Conservation Agriculture implementation, improve weed and pest management, and promote crop diversification; and (iv) improving coordination between FISP and FRA to ensure timely and predictable payments. Implementing these measures would enhance the effectiveness of public agricultural support, improve productivity, and strengthen the resilience of smallholder farmers in the face of climate and market shocks.

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List of Acronyms

Acronym	Full description
CA	Conservation Agriculture
CFU	Conservation Farming Unit
CSA	Climate Smart Agriculture
DACO	District Agricultural Coordinator
FISP	Farmer Input Support Programme
FGD	Focus Group Discussion
FRA	Food Reserve Agency
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HA	Hectarage
HH	Household
HHH	Household Head
KII	Key Informant Interview
MELIA	Monitoring, Evaluation, Learning, Impact and Accountability
SAO	Senior Agricultural Officer
SPSS	Statistical Package for the Social Sciences

1. Introduction and Rationale

1.1 Background

The Conservation Farming Unit (CFU), with support from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), is implementing the project titled "Promotion of Climate Smart Agriculture (CSA) for Improved Productivity and Sustainable Livelihoods." The project seeks to enhance agricultural productivity, promote sustainable land management, and strengthen the resilience of smallholder farmers against climate-related shocks.

Climate Smart Agriculture (CSA) has become increasingly essential in Zambia's agricultural landscape, where the impacts of climate variability threaten food security, income stability, and ecosystem integrity. The CFU, as a leading organization in promoting conservation and climate-resilient farming systems, plays a pivotal role in supporting farmers to transition from conventional to sustainable farming practices.

In this context, the CFU conducted the Rapid Appraisal of Subsidised input use and farming practices within its operational districts of Mumbwa, Chibombo, Mazabuka, and Choma. The Rapid Appraisal aimed to assess the joint effect of conservation agriculture and access to subsidized inputs. The appraisal also aimed to provide insights into the effectiveness and accessibility of subsidized input programs and their influence on farming decisions.

The findings from this assignment will form the foundation for tracking project outcomes, refining implementation strategies, and providing evidence-based recommendations for policy and programming in sustainable agriculture.

1.2 Purpose of the Rapid Appraisal

The rapid appraisal is a complementary, targeted exercise designed to provide immediate, comparative insights into how access to inputs and farming practices influence yields and adoption behaviour. The appraisal examined four farmer typologies:

- Subsidized input + CA adopters,
- Subsidized input + non-CA farmers,

- Non-subsidized input + CA adopters, and
- Non-subsidized input + non-CA farmers.

The smallholder farmers interviewed were those located in CFU catchment areas. The study employed short, semi-structured interviews, focused group discussions, and rapid field observations to capture yield data (maize and legumes), farmers' perceptions, and contextual differences in productivity. It aimed to triangulate and validate the baseline findings while providing early evidence on the effects of subsidised input access and CA adoption on farm performance.

Objectives

Main objective

To generate rapid, comparative evidence on maize and legume productivity across different farmer typologies, in order to assess how access to subsidized inputs and adoption of Conservation Agriculture (CA) influence yields and farming outcomes, and to complement and contextualize findings from the baseline study.

Specific Objectives

1. Compare maize and legume yields across four farmer categories based on access to subsidized inputs and adoption of Conservation Agriculture.
2. Identify key factors explaining yield differences, such as input access, labor, soil quality, farming practices, and farmer knowledge.
3. Identify opportunities and barriers to scaling up Conservation Agriculture within and beyond the subsidized input system.

Key Policy Question: Do farmers who access subsidized inputs and practice CA achieve higher yields than those who do not?

2. Methodology

The study employed a mixed-methods approach, combining quantitative household surveys with qualitative research techniques, including focus group discussions (FGDs) and key informant interviews (KIIs). The methodology was designed to generate reliable data and offer a robust foundation for evaluating the impact of the project.

The Rapid Appraisal applied a qualitative-leaning approach using semi-structured interviews, farmer group discussions, and field observations to generate quick, comparative insights on the influence of subsidized input access and farming systems on yields and sustainability outcomes.

2.1 Study Area and Coverage

The baseline survey was conducted in two provinces of Zambia: Southern (Mazabuka and Choma) and Central (Mumbwa and Chibombo) provinces. Based on the Agroecological zones and farming activities in the project target areas, we proposed that the four districts (Mazabuka, Choma, Mumbwa and Chibombo) provided good representation without visiting all the districts.

2.2 Sampling Framework

The rapid appraisal will use purposive and stratified sampling to capture yield data and perceptions from four distinct farmer typologies. Within each of the 4 selected camps within a district, at least eight (8) smallholder farmers were targeted to be interviewed, distributed as follows:

- Two Subsidized inputs + CA adopters
- Two Subsidized inputs + non-CA farmers
- Two Non-subsidized inputs + CA adopters
- Two Non-subsidized inputs + non-CA farmers

Therefore, the rapid appraisal targeted to interview at least 32 farmers per district, making a total target of 128 farmers. With the minimum target of 132 farmers, a total of 136 farmers were interviewed during the rapid appraisal study.

2.3 Desk review

The desk review synthesized existing evidence and operational context to shape the rapid appraisal design, instruments, and sampling. We analyzed CFU project documents (theory of change, MELIA indicators, training materials). The review also identified comparable measures from previous studies to enable trend or benchmark comparisons and outline the key CA drivers.

2.4 Qualitative interviews

To complement the household survey, qualitative data was collected through focus group discussions and key informant interviews. Two FGDs were conducted in each district, resulting in a total of 8 FGDs. Each focus group discussion consisted of 8 to 12 participants, including youth, men and women, to ensure inclusivity and gender balance. In addition, 4 KIIs were conducted in each district (totalling 24 KIIs). KIIs Interviewees included key stakeholders; Project implementers, cooperating partners, camp extension officers, cooperative leaders, and SAOs and DACOs. The qualitative information provided detailed information on the current status of subsidised input use, CSA adoption, as well as challenges hindering CSA implementation.

2.5 Data Analysis

Data analysis was conducted using Stata and SPSS to generate clean, district-disaggregated descriptives for core outcomes (CSA adoption levels). Qualitative data (KIIs/FGDs) was transcribed, coded to a structured codebook, and synthesised via matrix displays to explain mechanisms and implementation bottlenecks, with systematic triangulation against survey results.

3.0 Research findings

This section presents the key findings from the rapid appraisal, drawing on data collected through key informant interviews, focus group discussions, field observations, and a review of secondary sources. Its primary purpose is to provide a clear and coherent understanding of the prevailing conditions, emerging patterns, and priority issues as identified by key stakeholders.

The results are organized thematically. The section begins with an overview of the socio-demographic characteristics of the interviewed farmers, followed by an analysis of farm characteristics and tillage practices. It then examines yield differences associated with access to subsidized inputs and the adoption of conservation agriculture practices. The section further reports on the proportion of farmers accessing subsidized inputs and concludes with an assessment of the current status of farmer payments by the Food Reserve Agency.

3.1 Socio-Demographic Characteristics of Farmers

The results in Table 1 indicate notable differences in household characteristics between male-headed and female-headed households. On average, household size is relatively large (7.43 members), with male-headed households having slightly larger household sizes (7.72) compared to female-headed households (6.81). This suggests that male-headed households may have greater labor availability, which can influence farming practices and productivity.

The average age of household heads is 49.34 years, indicating that farming households are predominantly led by middle-aged to older individuals. Female-headed households have older household heads on average (52.63 years) compared to male-headed households (47.82 years), which may reflect widowhood, migration of male spouses, among other factors. Older household heads may also face constraints in adopting labor-intensive or innovative agricultural practices.

In terms of gender composition, the majority of households are male-headed, highlighting persistent gender imbalances in household leadership within the farming community. Educational attainment of household heads averages 9.48 years of schooling, corresponding roughly to incomplete secondary education. However, male household heads have higher average years of schooling (9.95) than female household heads (8.47), suggesting potential disparities in access to education. These differences in education levels may have implications for access to information, adoption of improved technologies, and engagement with agricultural support programs.

Table 1. Household Head characteristics

Indicator	Average	Male-headed Household	Female-headed Household
household size	7.43	7.72	6.81
Household head (HHH) age	49.34	47.82	52.63
HHH gender		93	43
HHH level of education (years)	9.48	9.95	8.47

Source: CFU/GIZ Rapid Appraisal Data

Under section 3.2 and 3.3, we analyze cultivated land use and tillage methods among smallholder farmers during the 2024/2025 agricultural season respectively.

3.2. Land under cultivation

Table 2 shows that smallholder production is dominated by maize, with an average total cultivated landholding of 2.39 hectares per household. Of this, maize accounts for the largest share, with a mean area of 1.71 hectares, confirming its continued role as the primary staple crop. Legume cultivation occupies a comparatively smaller share of cultivated land. Soybeans have the highest average area among legumes (1.01 hectares), suggesting growing uptake driven by market opportunities, input support programs, and their role in crop rotation and soil fertility improvement. Groundnuts (0.32 hectares), cowpeas (0.41 hectares), and mixed beans (0.19 hectares) are cultivated on much smaller plots, indicating that these crops are largely grown for household consumption with limited commercialization.

Overall, the land allocation pattern highlights a production system that remains maize-centric, with legumes playing a complementary but secondary role. While the presence of soybeans points to gradual diversification, the relatively small areas under other legumes suggest constraints such as limited access to seed, markets, or extension support. These findings underscore the need for targeted interventions to promote balanced crop diversification, improve legume productivity, and enhance resilience through more sustainable land-use practices.

Table 2. Area under crop cultivation

Indicator	Area under production (Mean)
Total cultivated land	2.39
Maize	1.71
Groundnuts	0.32
Soybeans	1.01
Mixed beans	0.19
Cowpeas	0.41

Source: CFU/GIZ Rapid Appraisal Data

In the following section, we analyse the tillage methods among smallholder farmers.

3.3 Tillage methods

The results in Table 3 indicate that conventional ploughing is the dominant tillage method (59.89%) of all plots. This overwhelming reliance on ploughing suggests that most farmers continue to practice conventional agriculture, likely due to familiarity, perceived effectiveness for weed control, and access to animal draft power. However, this practice contributes to soil disturbance and long-term land degradation if not properly managed.

Conservation-oriented tillage practices are present but remain limited. Ripping with animal draft power was used on 19.23% of plots, while planting basins (potholes), a key conservation agriculture (CA) practice, was applied on 10.44% of plots.

Mechanized conservation practices are relatively rare. Ripping with mechanical power (3.85%) and zero tillage (2.20%) together account for a small proportion of plots, highlighting limited access to appropriate machinery and equipment among smallholder farmers. Other practices, such as hand hoeing, bunding, ridging, and plots with no defined tillage method, each account for less than 2% of total plots.

The findings on tillage methods demonstrate that while conservation agriculture practices are being adopted by a subset of farmers, conventional ploughing remains the predominant land preparation method. This underscores the need for targeted extension services, access to appropriate tools, and labour-saving technologies to accelerate the transition toward more sustainable and climate-resilient tillage systems.

Table 3. Tillage methods

Practice	% of Plots
Ploughing	59.89
Ripping with animal draft power	19.23
Planting basins (potholes)	10.44
Ripping with mechanical power	3.85
Zero tillage	2.2
No other tillage method	1.37
Conventional hand hoeing	1.10
Bunding	1.10
Ridging (before planting)	0.82

Source: CFU/GIZ Rapid Appraisal Data

3.4 Input Use

Under this section, we begin by giving an analysis on the overall percentage agricultural input use among smallholder farmers during the 2024/2025 agricultural season. We then disaggregate input use by gender before doing further disaggregation by subsidy access and CA adoption.

The results in Table 4 show that inorganic fertiliser use dominates input application across plots, while the use of complementary and soil-improving inputs remains very limited. Just over half of the cultivated plots received basal fertiliser (53.02%) and top-dressing fertiliser (50.55%), with mean application rates of 131.71 kg/ha and 137.19 kg/ha, respectively. These figures indicate that fertiliser use is widespread but not universal, suggesting that a substantial proportion of plots may still be under-fertilised or receive incomplete nutrient application.

In contrast, the use of crop protection inputs is considerably lower. Only 28.57% of plots applied herbicides and 25% applied pesticides, highlighting constraints in weed and pest management. This limited use is particularly concerning in systems promoting conservation agriculture, where effective weed control is critical for productivity.

The application of soil amendments and organic inputs is almost negligible. Lime use is virtually absent (0.27% of plots), while only 14.01% of plots received manure or compost. The very low use of lime suggests limited attention to soil acidity management, while the low use of organic inputs points to missed opportunities for improving soil structure and long-term fertility. Overall, the results indicate a strong reliance on inorganic fertilizers, with insufficient integration of complementary inputs needed to enhance input efficiency, soil health, and sustainable productivity gains.

Table 4. Input Use

Input	Mean (kg/ha)	% of plots (n=364)
Basal fertilizer	131.71	53.02
Top dressing	137.19	50.55
Herbicides		28.57
Pesticides		25.00
Lime		0.27
Manure/compost		14.01

Source: CFU/GIZ Rapid Appraisal Data

Table 5 shows largely similar patterns of input use across male- and female-headed household plots, with only minor differences. Use of inorganic fertilizers is high for both groups, but slightly higher among female-headed households, with 94.55% applying basal fertilizer and 96.36% applying top-dressing, compared to 87.50% for both fertilizer types among male-headed households. This suggests that female-headed households that access fertilizer tend to apply it consistently on their plots.

Use of crop protection inputs is moderate and broadly comparable, though male-headed households report slightly higher use of herbicides (43.75% vs. 40.00%) and pesticides (28.47% vs. 23.64%), possibly reflecting greater access to cash or sprayer equipment. Lime use is negligible across both groups, indicating limited soil amendment practices. Application of organic inputs (manure/compost) is low overall, but somewhat higher among male-headed households.

Table 5. Agricultural Input use by gender

Input		% of male-headed households plots	% of female-headed households plots
Basal fertilizer		87.50	94.55
Top dressing		87.50	96.36
Herbicides		43.75	40.00
Pesticides		28.47	23.64
Lime		0.69	0.00
Manure/compost		22.92	18.18

Source: CFU/GIZ Rapid Appraisal Data

Disaggregating input use by subsidy access and CA adoption reveals important differences in input intensity and diversity (Table 6). Use of inorganic fertilizers is highest among subsidized farmers, regardless of CA adoption status, with over 92% of subsidized CA adopters and nearly 96% of subsidized non-CA farmers applying both basal and top-dressing fertilizer.

Among non-subsidized farmers, fertilizer use is lower, particularly for non-CA adopters, where only 75.61% applied basal fertilizer and 80.49% applied top dressing. This suggests that subsidy access plays a critical role in enabling fertilizer use, especially among farmers who do not adopt CA practices.

Use of herbicides and pesticides varies more strongly by CA adoption than by subsidy status. Non-subsidized CA adopters report the highest use of herbicides (52.08%) and pesticides (41.67%). Farmers, during FGDs highlighted that it is difficult to control the weeds that are associated with CA practice with manual weeding and therefore majority of CA farmers resort to using herbicides. In contrast, non-CA farmers, particularly those without subsidies, report much lower use of crop protection inputs, which may constrain yield performance.

Lime use is negligible across all categories, while manure or compost application is highest among subsidized CA adopters (32.31%), suggesting greater integration of organic inputs among farmers combining subsidy access with CA practices. However, overall use of organic inputs remains low, indicating limited progress toward integrated soil fertility management. The next section provides a detailed analysis of crop yield. We begin by highlighting the average yield per crop and then analyze yield by farmer category.

Table 6. Input use disaggregation by subsidy access and CA adoption

Input	% Subsidized input + CA adopters	% Subsidized input + non-CA farmers	% Non-subsidized input + CA adopters	% Non-subsidized input + non-CA farmers
Basal fertilizer	92.31	95.56	91.67	75.61
Top dressing	92.31	95.56	89.58	80.49
Herbicides	38.46	46.67	52.08	34.15
Pesticides	32.31	15.56	41.67	14.63
Lime	1.54	0.00	0.00	0.00
Manure/compost	32.31	11.11	20.83	17.07

Source: Own illustration

The next section analyzes smallholder maize and legumes production and yield outcomes during the 2024/2025 agricultural season.

3.5 Crop Production and Yield Outcomes

Table 7 results show clear differences in crop productivity across crop types. Overall mean yields indicate that maize is the most productive crop, with an average yield of 2.90 tons per hectare, while all legumes record substantially lower yields. Soybeans, groundnuts, and mixed beans cluster around 0.50–0.53 tons per hectare, whereas cowpeas perform the poorest at 0.23 tons per hectare. This pattern reflects the dominant role of maize in smallholder systems and the relatively higher input support it receives, while legume production remains largely low-input and constrained by limited access to improved seed, soil fertility management, and pest control.

Table 7. Maize and legume yields (tons/ha).

Crop	Mean Yield (tons/ha)
Maize	2.90
Groundnuts	0.50
Soybeans	0.53
Mixed beans	0.52
Cowpeas	0.23

Source: CFU/GIZ Rapid Appraisal Data

Table 8 shows modest but crop-specific gender differences in yields. Male-headed households record slightly higher yields for maize (2.94 tons/ha) and groundnuts (0.59 tons/ha) compared to female-headed households. In contrast, female-headed households outperform male-headed households in soybeans and mixed beans, with notably higher yields for mixed beans (0.619 tons/ha versus 0.428 tons/ha). Cowpea yields are low and similar across both groups, implying limited gender differentiation for this crop.

Table 8. Crop yield by gender

Crop	Male-headed household Yield (tons/ha)	Female-headed household Yield (tons/ha)
Maize	2.942	2.808
Groundnuts	0.588	0.358

Soybeans	0.470	0.593
Mixed beans	0.429	0.620
Cowpeas	0.237	0.216

Source: CFU/GIZ Rapid Appraisal Data

Disaggregating yields by farmer category reveals the important role of conservation agriculture (CA), particularly for maize (Table 9). Farmers who are both subsidized and adopt CA achieve the highest maize yield at 3.34 tons per hectare, followed closely by non-subsidized CA adopters at 3.25 tons per hectare. In contrast, farmers who do not receive subsidized inputs and do not practice CA recorded a slightly higher mean maize yield (2.55 tons/ha) than subsidized households that did not adopt CA. This counterintuitive result suggests that access to subsidized inputs alone does not automatically translate into higher productivity. Receipt of subsidized inputs does not necessarily guarantee adequacy of input quantities, timely delivery, or effective utilization at the plot level. Delayed input distribution, widespread sharing of subsidized inputs within cooperatives, and sub-optimal application practices likely reduced the productivity benefits expected from subsidy access among non-CA adopters. These findings underscore the importance of complementary agronomic practices and effective implementation mechanisms in determining yield outcomes, beyond mere participation in input subsidy programmes.

Soybean yields vary less markedly across farmer categories, ranging from 0.29 to 0.61 tons per hectare. Notably, the highest soybean yield is recorded among non-subsidized non-CA adopters. This pattern suggests that soybean productivity may be less dependent on fertilizer subsidies or CA practices and more influenced by factors such as varietal choice, planting time, and inherent soil fertility, highlighting the crop's relative adaptability under low-input conditions.

Cowpea yields are consistently low across all categories, but a clear management effect is evident. Subsidized CA adopters achieve the highest cowpea yield at 0.31 tons per hectare, while non-CA adopters, regardless of subsidy status, record extremely low yields of 0.07–0.08 tons per hectare. This indicates that cowpeas are highly sensitive to agronomic practices, and that CA adoption combined with timely input access can significantly improve productivity outcomes for this crop.

Groundnut yields appear relatively stable across farmer categories, ranging from 0.40 to 0.57 tons per hectare. The highest yields are observed among non-subsidized non-CA adopters, suggesting that groundnut production may rely more on farmer experience, seed quality, and local agro-ecological conditions than on subsidy support or CA adoption. This stability points to the potential for improving groundnut productivity through targeted varietal and extension interventions rather than blanket input subsidies.

Mixed beans show the strongest positive response to combined support. Subsidized CA adopters achieve a markedly higher yield of 1.06 tons per hectare, more than double the yields observed among most other farmer categories. This suggests a strong complementary effect between subsidies and CA practices, likely due to improved soil moisture conservation and nutrient use efficiency under CA systems, which are particularly beneficial for mixed cropping systems.

Overall, the findings indicate that maize responds most strongly to both subsidies and CA adoption, while legume responses are more crop-specific. Conservation agriculture consistently enhances yields, especially when combined with input support, underscoring the importance of integrating agronomic practices with subsidy programs rather than relying on subsidies alone to drive sustainable productivity gains.

Table 9. Yield by category of farmers (tons/ha)

Farmer Category	Mean Yield (tons/ha)				
	Maize	Soyabean	Cowpeas	G/nuts	Mixed beans
Subsidized +CA adopter	3.34	0.60	0.31	0.51	1.06
Non Subsidized + CA adopter	3.25	0.51	0.24	0.50	0.18
Subsidized + Non CA adopter	2.44	0.29	0.08	0.40	0.69
Non Subsidized + Non CA adopter	2.55	0.61	0.07	0.57	0.17

Source: CFU/GIZ Rapid Appraisal Data

3.6 Input redemption under FISP

In addition to examining crop yields and production outcomes, this report also assessed household access to subsidized agricultural inputs distributed under the Farmer Input Support Programme (FISP) during the 2024/2025 agricultural season. FISP remains the

Government of Zambia's flagship intervention for supporting smallholder farmers by improving access to key production inputs, with the broader objective of enhancing food security, crop productivity, and rural livelihoods. Understanding which inputs farmers receive, and the extent of access across different household types, is critical for interpreting observed production and yield outcomes.

Table 10 shows that 70 out of 136 households in the sample reported receiving subsidized inputs during the 2024/2025 agricultural season. Access to maize crop-related FISP inputs was very high, particularly for fertilizer. Nearly all households received basal fertilizer (98.57%) and top-dressing fertilizer (97.14%), while 85.71% of households reported receiving maize seed.

Table 10. Number of households that received subsidized inputs during the 2024/25 agricultural season

Input	% of households that received input
Seed	85.71
Basal Fertilizer	98.57
Top dressing Fertilizer	97.14
Herbicides	10.00
Pesticides	4.29
Legumes	4.92

Source: CFU/GIZ Rapid Appraisal Data

In contrast, access to complementary inputs was extremely limited. Only 10.00% of households received herbicides, while access to pesticides (4.29%) and legume inputs (4.92%) was negligible. This indicates that FISP support remains narrowly concentrated on fertilizer and maize seed, with limited attention to crop protection inputs and legume promotion.

Disaggregation by household headship reveals minimal gender-based disparities in access to subsidized inputs (Table 10). Both male- and female-headed households report similarly high access to maize seed and fertilizer. For instance, 100% (n=23) of female-headed households accessed both basal and top-dressing fertilizer, compared to 97.87% and 95.74%, respectively, among male-headed households. Access to seed was also comparable across groups, with 86.96% of female-headed households and 85.11% of male-headed households receiving maize seed. This suggests that, at least among sampled beneficiaries, FISP input distribution did not systematically disadvantage female-headed households.

However, access to non-core inputs such as herbicides, pesticides, and legumes remains uniformly low across both male- and female-headed households. Less than 11% of either group accessed herbicides, while pesticide and legume access remained below 5% for both groups.

Table 11. Inputs redeemed by smallholder farmers under FISP

Input redeemed	% of Male headed Households (n=47)	% of Female headed Households (N=23)
Seed	85.11	86.96
Basal Fertilizer	97.87	100.00
Top dressing Fertilizer	95.74	100.00
Herbicides	10.64	8.70
Pesticides	4.26	4.35
Legumes	5.00	4.76

Source: CFU/GIZ Rapid Appraisal Data

3.6.1 Input redemption period

The results, as shown in Figure 1, indicate that receipt of subsidised inputs was highly concentrated in November and December, rather than before the start of the agricultural season. The largest share of households received inputs in November (34.56%), followed by December (15.44%). In contrast, very few households accessed inputs early in the season, with only 1.47% receiving inputs in August and 3.68% in September. This indicates that only a small proportion of farmers obtained inputs in time for optimal land preparation and early planting.

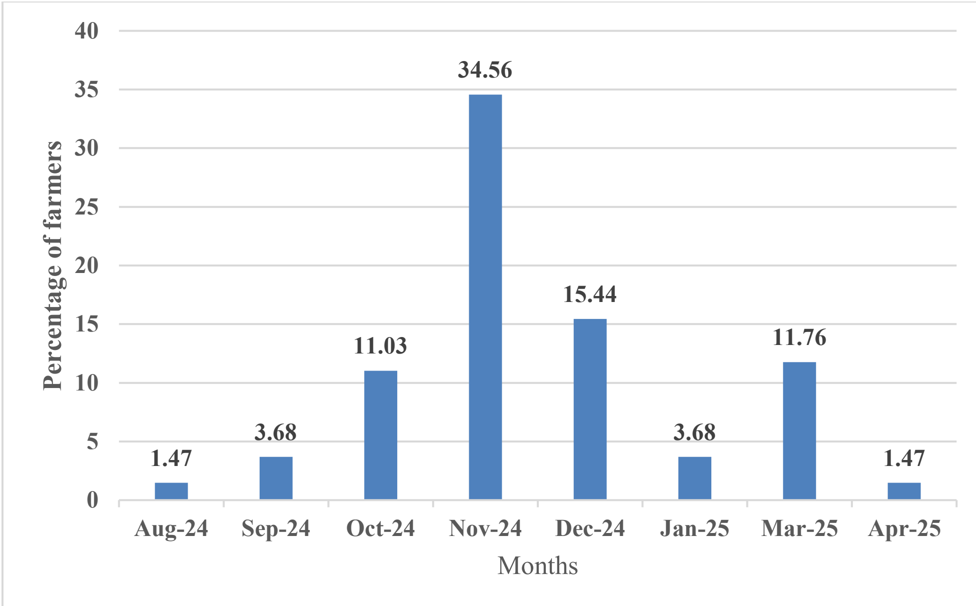

Figure 1. Input redemption period

Source: CFU/GIZ Rapid Appraisal Data

Input receipt increased in October (11.03%), but this still represents a minority of households accessing inputs during the recommended planting window. For most farmers, inputs were delivered after planting had already begun or was completed, which likely constrained the effective use of seed and fertilizer. Late delivery of basal fertilizer, in particular, reduces its agronomic effectiveness and may force farmers to apply it late or on reduced plot sizes.

Notably, a non-negligible proportion of households received inputs well after the main planting period, with 11.76% receiving inputs in March 2025 and 1.47% in April 2025. Inputs received this late in the season are unlikely to contribute meaningfully to crop production and may instead be stored, shared, or diverted to the following season. This timing further highlights inefficiencies in the input distribution process.

A small share of households also received inputs in January 2025 (3.68%), which falls after the optimal planting window for most rain-fed crops. Such delays can result in late planting, reduced yields, and increased exposure to moisture stress, particularly for maize and legumes. This pattern is consistent with observed yield outcomes, where even subsidized farmers do not consistently achieve high productivity.

3.6.2 Sharing of inputs among FISP beneficiaries

The findings in Table 12 show that sharing of subsidized inputs is relatively common among beneficiary households, reflecting cooperative-level dynamics even when the programme is not designed this way. It is more of an initiative of the cooperative. Overall, 28.68% of households reported sharing subsidized inputs, indicating that more than one in four beneficiary households did not retain the full input package allocated to them. Among those who shared inputs, households reported sharing with an average of six other households, suggesting that the quantities ultimately received at the individual household level may be substantially reduced.

The reasons for sharing subsidized inputs point primarily to structural and institutional factors rather than voluntary redistribution. The most frequently cited reason was that there were not enough inputs for all cooperative members, reported by 89.74% of households that shared inputs. Closely related to this, 69.23% indicated that inputs were allocated to a group rather than to individuals, necessitating redistribution among members. These findings suggest that cooperative-based allocation mechanisms may unintentionally reduce the effectiveness of the subsidy by spreading limited inputs too thinly across households. Although the FISP implementation framework recommends that each beneficiary receive a full input pack without sharing, the cooperative structures still promote input sharing.

Table 12. Reasons for sharing inputs

Reasons for sharing inputs	Percentage of farmers
There were not enough inputs for all cooperative members	89.74
Instructed to share the inputs equally	30.77
To maintain good relations and unity within the cooperative	15.38
Some vulnerable members needed support	2.56
Cooperatives instruct that subsidized inputs, even when redeemed by individual farmers, are considered the property of the cooperative and should be shared among its members.	69.23
Fear of being excluded from future cooperative benefits	2.56

Source: CFU/GIZ Rapid Appraisal Data

Programme and cooperative instructions also play an important role in shaping sharing behaviour. Nearly one-third of households (30.77%) reported that they were instructed to share inputs equally, highlighting the influence of cooperative leadership and local norms in determining how subsidized inputs are ultimately distributed. This practice, while promoting equity at the group level, may undermine expected productivity gains at the household level, especially for input-intensive crops such as maize.

Social considerations appear to play a secondary but still relevant role in input sharing. About 15.38% of households reported sharing inputs to maintain good relations and unity within the cooperative, indicating the importance of social cohesion and peer pressure in collective farming arrangements. In contrast, sharing driven by support to vulnerable members (2.56%) or fear of exclusion from future cooperative benefits (2.56%) was relatively rare, suggesting that altruistic and coercive motivations are less dominant compared to structural allocation issues.

3.7 FRA Payments

The rapid appraisal also analysed the timing of payments to farmers who supplied maize to the Food Reserve Agency (FRA). This was done to understand farmer liquidity at the onset of the rainy season. For this analysis, we focused on the 2025/2026 marketing season, as this captured the period in which the maize and legumes grown during the 2024/2025 agricultural season were sold.

The results in Figure 2 reveal substantial delays in payments from FRA among surveyed households. Only 27.03% of households reported being fully paid for maize sold to FRA while a very small proportion (5.41%) had received partial payment, by the first week of December 2025. In contrast, the majority of households (67.57%) indicated that they had not yet received any payment at the time of the survey (from 24th November to 4th December 2025). These findings indicate that most farmers were facing severe post-harvest liquidity constraints, limiting their ability to meet immediate household needs, reinvest in agricultural inputs, or adequately prepare for the subsequent farming season.

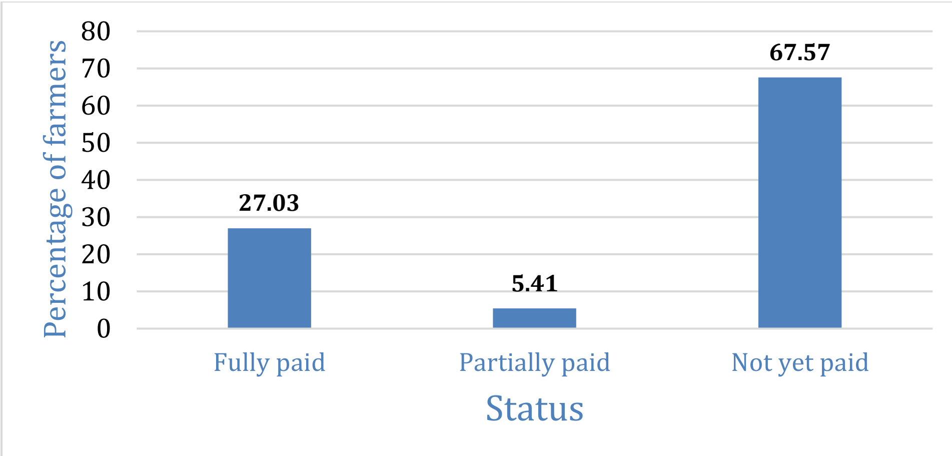

Figure 2. FRA payment status

Source: CFU/GIZ Rapid Appraisal Data

Among the few households that had received full payment (n = 18), the timing of payment further confirms the extent of these delays.

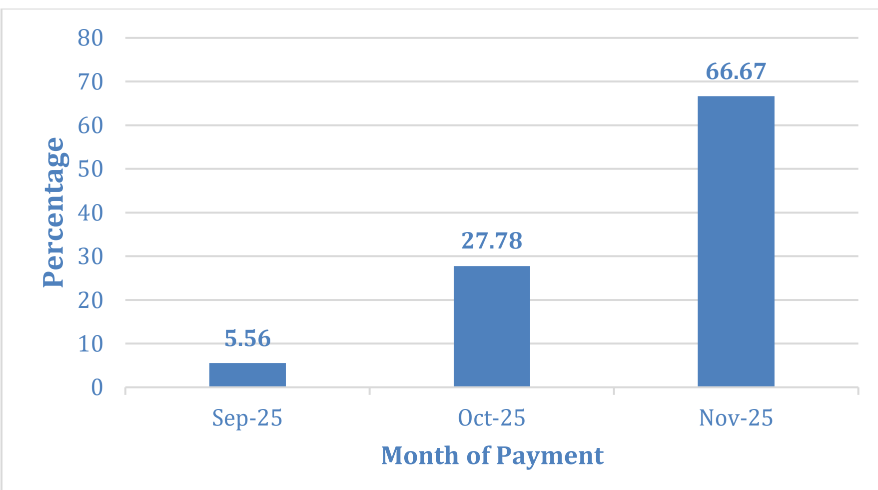

Figure 3. Month farmer received FRA payment

Source: CFU/GIZ Rapid Appraisal Data

Of the 27% fully paid farmers, most payments were made late in the year, with 66.67% of households receiving payment in November 2025 and 27.78% in October 2025. Only 5.56% of households received payment as early as September 2025. This pattern shows that even when payments were eventually made, they occurred well after crop delivery and harvest, thereby exacerbating liquidity constraints and reducing farmers' ability to invest timely in inputs for the following agricultural season. Together, delayed and incomplete FRA payments emerge as a critical bottleneck in smallholder cash flow, with important implications for input use, productivity, and livelihood resilience.

Figure 4 illustrates the effects of delayed FRA payments on smallholder farmers' production decisions. Delays in payments directly constrained farmers' ability to procure critical inputs, with 85% of households reporting delays in seed purchase and 80% reporting delays in fertilizer procurement. Such disruptions to timely input acquisition are particularly consequential under rain-fed farming systems, where planting dates and fertilizer application must align closely with rainfall patterns. In the context of increasing climate variability and climate change, delayed access to inputs heightens production risk and undermines potential yield gains, as even small deviations from optimal planting and input application windows can result in substantial yield losses.

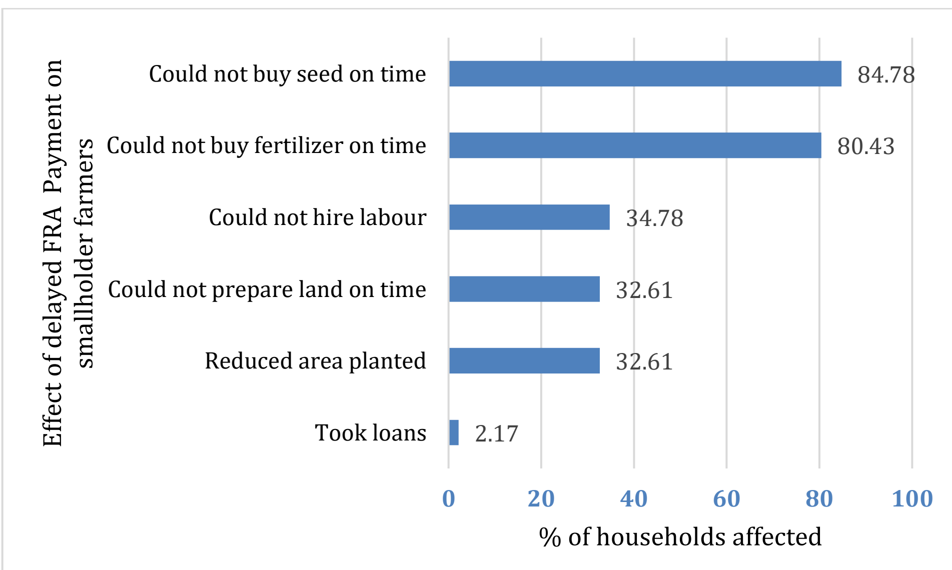

Figure 4. Effect of delayed FRA Payment on smallholder farmers

Source: CFU/GIZ Rapid Appraisal Data

4. Discussion

The rapid appraisal results reveal a combination of institutional, timing, and management constraints that collectively limit smallholder productivity and livelihood outcomes. Average maize yields (2.90 tons/ha) were substantially higher than those of legumes, which generally ranged between 0.23 tons/ha for cowpeas and about 0.50–0.53 tons/ha for soybeans, groundnuts, and mixed beans. Yield differences were strongly associated with both access to subsidized inputs and adoption of conservation agriculture (CA). Farmers who were subsidized and adopted CA achieved the highest maize yields (3.34 tons/ha), followed closely by non-subsidized CA adopters (3.25 tons/ha), while subsidized farmers who did not adopt CA recorded much lower yields (2.44 tons/ha). This pattern demonstrates that input subsidies alone are insufficient, and that agronomic practices play a critical role in translating input access into productivity gains.

Access to core subsidized inputs under the Farmer Input Support Programme (FISP) was generally high among beneficiary households. Nearly all households received basal fertilizer (98.57%) and top-dressing fertilizer (97.14%), while 85.71% accessed seed. However, access to complementary inputs was extremely limited, with only 10% receiving herbicides, 4.29% pesticides, and 4.92% legume inputs. This narrow focus on fertilizer and maize seed constrains productivity, particularly in conservation agriculture systems that depend on effective weed control and in diversified cropping systems where legumes play a key role in soil fertility and dietary diversity.

The effectiveness of subsidized inputs was further undermined by late delivery. Only 1.47% and 3.68% of households received inputs in August and September respectively, while the majority received inputs in November (34.56%) and December (15.44%). A notable share of households received inputs as late as March (11.76%) and April (1.47%), well beyond the optimal planting period. Such delays reduce the agronomic effectiveness of fertilizer and seed, force late planting or reduced plot sizes, and heighten production risk under increasingly variable rainfall conditions associated with climate change.

Input sharing within cooperatives was widespread and closely linked to these structural constraints. More than a quarter of households (28.68%) reported sharing subsidized inputs, with those who shared redistributing inputs to an average of six other households.

The dominant reasons for sharing were insufficient inputs for all cooperative members (89.74%) and allocation of inputs to groups rather than individuals (69.23%), while 30.77% reported being instructed to share equally. Although sharing promotes equity and social cohesion, it significantly dilutes per-household input intensity and helps explain why yield gains among subsidized farmers remain modest.

Gender-disaggregated results show that differences in productivity are crop-specific rather than systematic. Male-headed households achieved slightly higher yields for maize (2,941.76 kg/ha) and groundnuts (588.09 kg/ha), while female-headed households outperformed males in soybeans (592.93 kg/ha) and mixed beans (619.70 kg/ha). Input use patterns were broadly similar across gender, though female-headed households reported slightly higher use of inorganic fertilizers (94.55% basal and 96.36% top-dressing) compared to male-headed households (87.50% for both), while male-headed households showed marginally higher use of herbicides and pesticides. These findings suggest that gender differences in yields are more closely linked to crop choice, management strategies, and timing rather than unequal access to inputs.

Market-related constraints further exacerbate these production challenges. Payments from the Food Reserve Agency (FRA) were severely delayed, with only 27.03% of households fully paid and 67.57% not paid at all at the time of the survey. Among the few households that had received payment (n = 18), most were paid in November 2025 (66.67%), with only 5.56% receiving payment as early as September. These delays created significant liquidity constraints, directly affecting farmers' ability to procure inputs. Indeed, 85% of households reported delays in purchasing seed and 80% reported delays in purchasing fertilizer due to late FRA payments, reinforcing a cycle in which delayed output payments translate into delayed input use and reduced productivity.

Taken together, the results show that timeliness and coordination across input and output markets are critical bottlenecks in smallholder support systems. While access to inputs and markets exists in principle, delayed input delivery, widespread input sharing, and late FRA payments substantially weaken the effectiveness of existing programmes. Addressing these institutional and timing constraints, alongside promoting agronomic practices such as conservation agriculture and expanding access to complementary inputs, will be essential for achieving meaningful and sustainable productivity gains, particularly under conditions of climate variability.

5. Conclusion and recommendations

The rapid appraisal concludes that the effectiveness of smallholder support programmes depends less on access to inputs and markets per se, and more on how well these systems are timed, coordinated, and implemented. Delays in input delivery and output payments, coupled with limited integration of agronomic practices (such as conservation agriculture), weaken the productivity gains expected from public support. In the context of increasing climate variability, addressing these institutional bottlenecks is critical for improving smallholder productivity and strengthening livelihood resilience.

The study makes the following recommendations based on the findings

1. Government should consider formally embedding Conservation Agriculture (CA) within FISP, by linking subsidized input support to CA-aligned practices and providing accompanying extension, training, and appropriate input packages to enhance productivity and climate resilience.
2. There is a need to strengthen procurement and distribution systems to ensure that seed and fertilizer are delivered before or at the onset of the planting season, enabling farmers to plant on time and maximize yield potential under increasingly variable climatic conditions.
3. While FISP allows farmers to redeem a range of inputs, uptake remains heavily concentrated on fertilizer and maize seed. Government should strengthen incentives, extension messaging, and default package options to encourage greater redemption of herbicides, pesticides, and legume seeds, particularly to support effective Conservation Agriculture implementation, improve weed and pest management, and promote crop diversification.
4. Enhance institutional coordination to ensure timely FRA payments, reducing post-harvest liquidity constraints that undermine farmers' ability to procure inputs for the following agricultural season.

Our Vision

A prosperous,food-secure rural Africa where farmers practice sustainable agriculture and are resilient to climate change.

Our Approach

We combine practical field research, farmer training, and policy advocacy to create sustainable change in agricultural communities across Africa.

Our Mission

To promote Conservation Agriculture practices that improve soil health, increase yields, and build resilience against climate challenges.