SSR Closed Project Report

Report No. 01

Investigating low harvesting frequency in smallholder village oil palm (VOP) in Bialla, West New Britain (SSR 205)

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EXECUTIVE SUMMARY

The study was conducted in Bialla oil palm project in West New Britain Province of Papua New Guinea. The project has 27, 541 hectares planted with oil palm of which 13, 621 hectares belongs to Hargy Oil Palms and 13, 920 hectares by the smallholders. The smallholder sector comprises of 1, 672 land settlement scheme (LSS) blocks (46%) and 1, 963 village oil palm (VOP) blocks (54%). Despite having improved research, extension, technical support, improved roads and additional transport allocated to smallholders, harvesting in the VOP blocks continue to be an issue resulting in the low smallholder yields. Therefore, this study was initiated to identify factors contributing to the decline in harvesting frequency for VOP blocks. The study investigated harvesting, malpractices in harvesting and time management in harvesting amongst VOP farmers.

There have been reported cases of poor harvesting rounds for VOP growers even though they know harvesting contributes directly to their income. This study however revealed that social communal activities dominate most of the block residence's time apart from harvesting.

Over 90% of the interviewees practised skip harvesting because of low producing palms (86%), in need of money for customary (47%) and social/spiritual (38%) obligations. Over 60% of the respondents practiced crop shifting mainly to avoid loan repayment so that they can have more income to contribute to customary obligations and to meet social or spiritual commitments.

The four main reasons for irregular harvesting were low yielding palms (73%), block size (34%), labour shortage (33%) and customary commitments (27%). About 29% mentioned that blocks were too small while 5.3% of the blocks were too big to harvest. The block assessment revealed that 90% of the VOP blocks were harvested at one point in time despite showing poor harvesting records on the Hargy smallholder crop performance data base. This meant that harvesting was done but crop was shifted for fast cash and/or to avoid debt repayment to Hargy Oil Palms.

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BACKGROUND

Hoskins Oil Palm scheme was viewed as a success because it surpassed many of its early goals in terms of production and earning (Hulme 1984), providing an impetus to regional growth and development of the province. Its perceived success lead to the establishment of a similar oil palm nucleus estate-smallholder schemes in Bialla and Popondetta (Koczberski, Curry and Gibson, 2001). The Bialla project was established in 1972 but commenced in 1978 (Christensen, 1986). Since then the scheme has grown, by mid 1980s', 900 Land Settlement Scheme (LSS) blocks and 110 Village Oil Palm (VOP)blocks were established. By 2000, the scheme had a total of 1,670 LLS blocks and 1,067 VOP blocks and by 2017 the number of VOPs had increased to 1963 blocks.

Despite continuous support by Hargy Oil Palms towards the smallholder sector, the smallholder production continued to lag with low yields and irregular harvesting by the smallholders' village oil palm (VOPs) was one of the contributing factors. PNG Oil Palm Research Association's (PNGOPRA) research on demonstration blocks has proven that a one-hectare VOP block has the potential to produce same yield on a 1-hectare block on a plantation estate under good management. The research also showed that regular harvesting had positive impact on production. The higher the harvesting rounds, the better the yields (2015, 2016, 2017 PNGOPRA Annual Reports). However, smallholder production records from Hargy Smallholder production data revealed that harvesting rounds for VOPs have been declining and much lower than that of the LSS blocks. In 2017, PNGOPRA was approached by Hargy Oil Palms to investigate the low harvesting frequency on VOP blocks.

Objective

The study was conducted to investigate and identify possible factors that impacts decline in harvesting frequency.

METHODOLOGY

Quantitative research methods were used involving both primary and secondary data. Hundred blocks with harvesting rounds between zero and ten were selected from all divisions in Bialla Oil Palm project using the 2016 and 2017 Hargy Smallholder Crop performance data.

Questionnaires were formulated, tested and household surveys were conducted. Block standard and hygiene assessment were also done. Data from current and previous PNGOPRA reports and publications relevant to this study were also consulted. The questionnaire encompassed the following;

1. Respondents details
2. Block Profile
3. Land Tenure (security)
4. Block demographical data for the primary households, and other households on the block (gender, age, education and block population)
5. Harvesting strategies practised in the block
6. Technology adoption
7. Harvesting – (mal practises skip harvesting and crop shifting)
8. Security in society
9. Activities and time allocation

10. Labour supply and agronomic practices

Only 94 blocks were surveyed from the 100 selected blocks. The data from three blocks were omitted during data quality checks due to inaccurate information while the other three blocks were not surveyed.

RESULTS AND DISCUSSION

Respondent details

Ninety-nine (99%) of the respondents were from West New Britain with only 1% from East New Britain. In terms of gender and age, 70 % of the respondents were males while 30 % were females with ages ranging from 17 to 76 years of age. All respondents were adults, 52 % were in their early adulthood (20/22years- 40 years) and 39% in middle adult hood (40 years -60 years) and only 9 % were in late (old age) adulthood (60 or more years).

Picture 1 Jessica Bira interviewing a smallholder grower in Pakisi village

Block Profile

The size (area) of the surveyed blocks are shown in Table 1. Nearly three quarters of the blocks (73%) were 2ha oil palm blocks, 16% less than 2ha and 7% less 1ha.The remaining 4% were blocks with more than 2ha of oil palms and these blocks were either individually owned blocks or community plantings. About 73% of the surveyed blocks had only one household dependant of the block, 21% had two households, 3% had three households and 2% had four households (Figure 1).

The average household size was 4.3 persons indicating a nuclear family unit with no population pressure. Due to small family unit (Figure 2) 76% of the surveyed blocks practised single household harvesting strategy called *"wok bung"* whereby the adult male members harvest the fresh fruit bunches (FFB) and women and children collect the loose fruit. The proceeds from the FFB is then paid

into one bank account and managed by the block owner for the family's expenses for food and other family needs. The other 21% practised rotational harvest among multiple households (*makim mun*) where households may consist of the original block owner, his married sons and sometimes his daughters. These households move from a more co-operative to a rotational *(makim mun)* harvesting system whereby a family member and his/her family is allocated a round of harvest together with the subsequent proceedings from that harvest round. This system is repeated amongst all the households in the block. While 9% of the survey blocks practised mixture of rotational and single household harvest strategy (*makim mun and wok bung*), the remaining 3% hired labour. About 89% of the households lived outside their blocks mainly in the villages while 11% lived on the blocks.

Table 1 Block sizes (Ha) and their proportion to number of blocks surveyed

Block Size (hectares)	**Percentage (%)**
Less than 1Ha	7 (n= 6)
Less than 2Ha	16 (n= 15)
2 Ha block	73 (n= 68)
More than 2Ha	4 (n= 4)

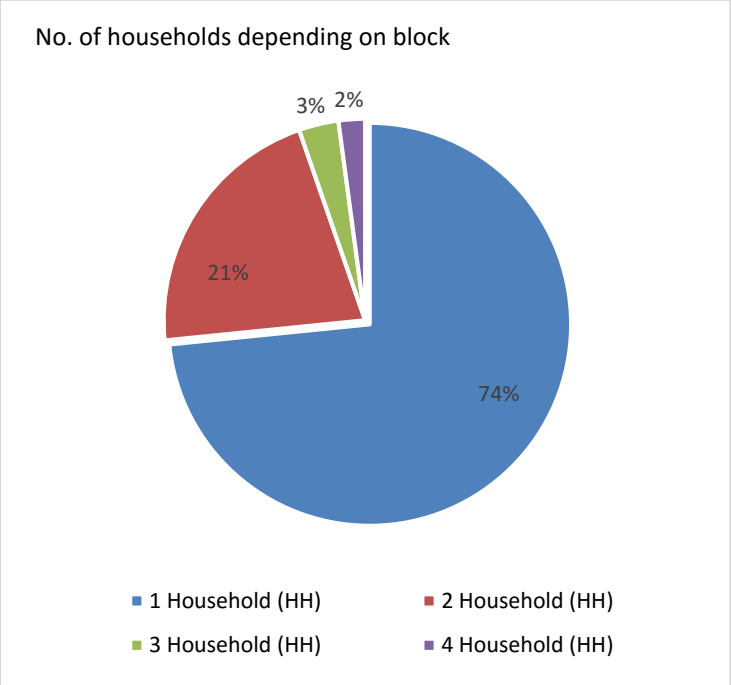

Figure 1 Number of households depending on block

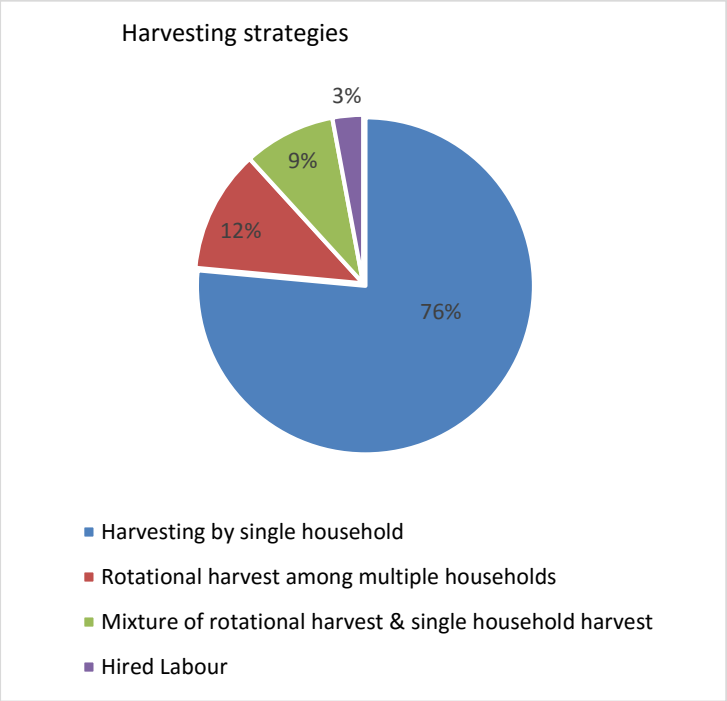

Figure 2 Harvesting strategies

Block ownership status and land tenure

Over 53% of the respondents were original owners of the blocks while 47% were their spouses, parents, siblings, relatives or non-relatives (caretakers or friends) of the original owner. More than 60% of the respondents were responsible for managing the block while 39% were not. 94% of the original owners of the surveyed blocks were still alive while 6% were deceased. Most of the blocks (88%) have secured land tenure. The land for planting oil palm were found to be acquired under 3 different agreements.

1. *Land owning rights* – landowners cultivating oil palm on their own land. About 82% of the respondents were land owners. The land tenure under this agreement is secure but may pose problems in the future.
2. *Inheritance* – block owners inheriting land from their parents, grandparents who are traditional landowners. About 11% of the respondents gained access through this agreement.
3. *Acquiring land through purchasing* – this agreement is common in situations where the block owner is from another province or within West New Britain who can also be a clan member or non- clan member.

Harvesting and time management

In Table 2, harvesting was compared to other livelihood activities such as customary obligations, church, school, council meetings, fishing, gardening and sports. These activities were categorised in their order of importance (high, medium and low) in which each activity was ranked in the order of importance from 1 being the most important to 9 the least important. The average was taken for each category, and results revealed that social activities topped each category; church activities (28%) was of high importance followed by customary obligation (21%) with medium importance and sports (29%) with low importance. Harvesting is second in high priority importance. Although social activities were

seen to be of high importance over harvesting, all these social activities such as customary obligations, church activities, school activities and etc were centred around harvesting.

In terms of blocks visits, within a fortnight 45% of the farmers visited their blocks twice, 26% made 3 or more visits, 24% visited once and 5% did not visit their blocks (Figure 3). The main reason for the block visits were to check if there were enough ripe bunches to harvest. Some blocks recorded "no visits" because of ongoing disputes, blocks being abundant, blocks recently replated and non-producing blocks or blocks with tall oil palm stands.

Table 2 Activities categories from the most important to the least important.

	Most important activity to least important activity												
Category	High Importance			High Av.	Medium Importance			Medium Av.	Low Importance			Low Av.	
Activity/Rank	1	2	3		4	5	6		7	8	9		Total %
Harvest	22	19	17	19	19	15	3	13	1	0	3	1	100
Customary Obligations	1	8	11	6	15	25	23	21	8	8	3	7	100
Church Activity	52	20	12	28	12	1	0	4	4	0	0	1	100
School Activity	6	23	22	17	14	9	13	11	3	6	4	5	100
Council Meeting	1	8	17	9	20	26	10	19	13	2	3	6	100
Fishing	1	2	3	2	2	5	10	6	26	29	22	25	100
Gardening	17	11	12	13	12	10	8	10	19	8	4	10	100
Sports	0	0	2	1	2	1	9	4	14	31	41	29	100
OPIC/OPRA/Hargy Training	0	10	5	5	3	10	26	13	13	15	17	15	100
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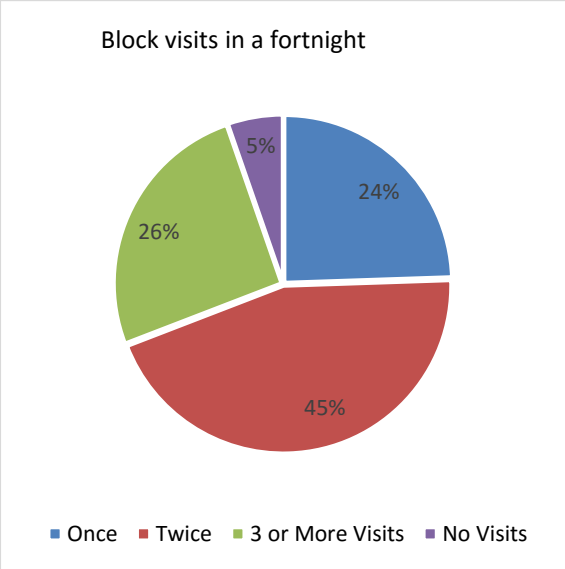

Figure 3 Block visits in a fortnight

Skip harvesting and crop shifting

Skip harvesting is when the block owner deliberately decides not to harvest for one or more harvest rounds based on agronomic, climatic and social factors. The common factors that influence decision on harvesting include low producing palms, customary obligations/commitments and prolonged wet weather cutting off road access into smallholder blocks by the fruit trucks. Crop shifting on the other hand is the selling or weighing of oil palm fresh fruit bunches (FFB) to another block using the other blocks harvesting card or electronic tag (e-tag). Nearly all the interviewees stated that they have heard, witnessed or practiced skip harvesting and crop shifting either on their blocks or on other neighbouring blocks at some point in time.

Determinants of skip harvesting

Over 90% of the interviewees admitted having practised skip harvesting. The main reasons for skipping harvests are shown in Figure 4. Majority of the smallholders (86%) practiced skip harvesting because there were no or not enough bunches to harvest (low producing oil palms). They also skip harvests when they are in desperate need of money for upcoming customary obligations (47%) and spiritual commitments (38%). They perceive that by skipping harvest, they are accumulating more bunches hence more income. Other reasons (18%) for skip harvesting included block size, land disputes between family members or clan, location of blocks in areas with no road access and labour (mainly harvesters) shortage.

About 34% mentioned that the size of blocks influenced harvesting and subsequent yields. About 84% and 16% said their blocks were either too small or too big respectively. Harvests were skipped for small size blocks for one or more harvest rounds to give more time for fruits on the oil palms to ripen.

In Meramera (6.4%) and Maututu (1.1%) respectively, the survey team came across certain blocks that were initially part of a community planting. When agreements failed these community plantings were then sub-divided into smaller blocks amongst clan members. Since owning oil palm blocks was never their intention, they were forced to take ownership and manage these blocks. As a result, harvest was either ignored or skipped and those owing more than one block usually skipped harvests due to availability of less skilled harvesters to harvest so they rotated in harvesting between blocks, hence skipping harvesting.

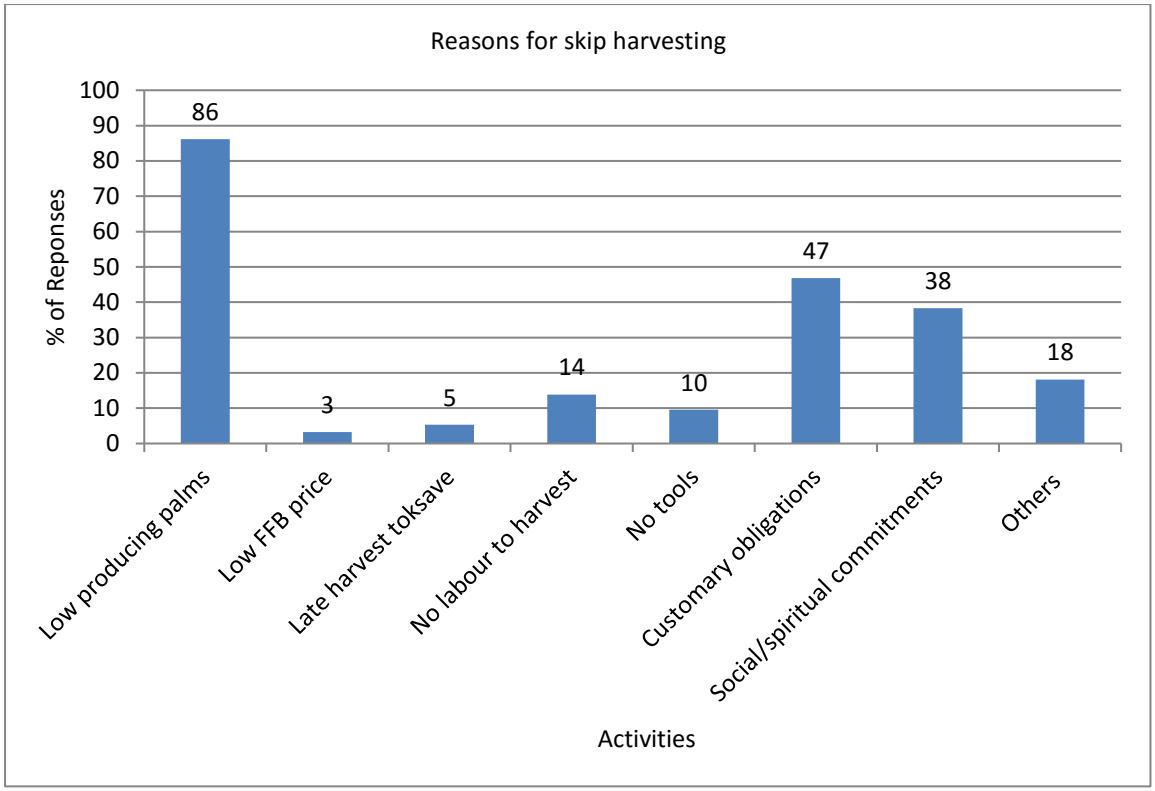

Figure 4 Reasons for skip harvesting

Reasons for crop shifting

More than 60% of the respondents practice crop shifting because of the reasons given in

Table 3. Crop was shifted to avoid deductions so that they have more money to contribute to customary obligations (45%) and social/spiritual commitments (44 %). Majority of the respondents expressed that by contributing to customary obligations and social/spiritual commitments, they maintained their social status and respect within the society. More than 19% shifted their crop to avoid debts (loan) repayment to Hargy Oil Palms, commercial banks and other financial institutions. VOP growers prefer to give crop (bunches) as payment of their credit other than actual cash hence 2% shift crop to repay their credit to those who lend out cash. Interestingly, 14% mentioned that crop was shifted as a form of payment for hired labour and 15% stated other reasons listed below:

- **Deceased blocks** (purchaser is an outsider) - while waiting change of ownership the landowner moves in to harvest and shift crop to own block.
- **Land Dispute**
    - Purchaser vacating the block temporarily or permanently as a result of dispute between purchaser and landowners. The landowner then moves in to harvest and shift crop to either own or another block.
    - Internal dispute between clan members so while waiting ownership to be settled, crop is harvested and shifted to another block.
    - Internal family disputes -if the block owners' wife is the landowner's daughter then the landowner's children especially his son(s) move in harvest and shift crop either to their own block or another block (family member/friend or neighbours' block).

- **No Labour**. If there were delays in securing hired harvesters resulting in late harvesting, the crop is then shifted to nearby community plantings and mini estates.
- **Small Block size**. These small size blocks were harvested but crop is shifted because of less number of bunches.
- **Prolong Absence of Original owner.** There were reported cases where the block owner takes the bank card and is away working or living in another province and this forces their families living and taking care of the blocks to divert crop so that they continue to be paid from the FFB sales to sustain their living.
- **Blocks near community plantings/mini-estates.** These blocks have received oil palm seedlings from community plantings for planting, so the owners feel obliged to divert crop back to these community plantings. They also shift crop to these community plantings for fast cash.
- **Contracted vehicles by community plantings/mini-estates.** When a community planting contract carting of FFB to private vehicles to Hargy, Barema and Navo mills, the owners of the vehicles who have blocks can manipulate decisions and shift crop.

On a positive side, 29% of the respondents stated that they discourage crop shifting on their blocks, as this malpractice only increases the production of another block and gives a bad impression about their blocks.

Table 3 Reasons for crop shifting

Reasons for crop shifting	Percentage (%) of respondents
➢ Avoid debts (Hargy Oil Palms & Commercials banks, etc.)	19
➢ Contribute to customary obligations	45
➢ Contribute to social/spiritual commitments	44
➢ Fast cash – crop harvested and sold to grower who has money to pay cash up front	7
➢ Hire Labour –payment with crop	14
➢ Care taker payment	3
➢ Repayment for credit (food, beer or chicken)	0
➢ Repayment for credit money	2
➢ Problems with harvesting cards or selling electronic tags (E-tags)	6
➢ Problem with Bank Card (broken/stolen)	1
➢ Problem with Bank Account	7
➢ Others not mentioned	15

Reasons for irregular harvesting

Irregular harvesting is the same as skip harvesting. Skip harvest is when a farmer deliberately decides not to harvest for one or more harvest rounds for reasons only known to the farmer. Irregular harvesting is when farmers do not comply to rules to complete 26 harvesting rounds set by the oil palm industry in one year. However, in this study, skip harvesting was considered as a one-off practice within a month.

The main reasons for irregular harvesting are shown in Figure 5. These were low producing palms, block size, labour shortage and customary obligation. About 73% admitted to have harvested irregularly because the palms were not producing enough crop to harvest. Others (34%) stated that the block were either too small or too big. Smaller block ended up with not enough fresh fruit bunches

to harvest, while large blocks require more labour input and when there is labour shortage, these blocks were not harvested. About 33% stated that labour was problem in which there were not enough young energetic workers to harvest. Customary obligations and social/ spiritual commitments (27%) were other reasons for not harvesting regularly.

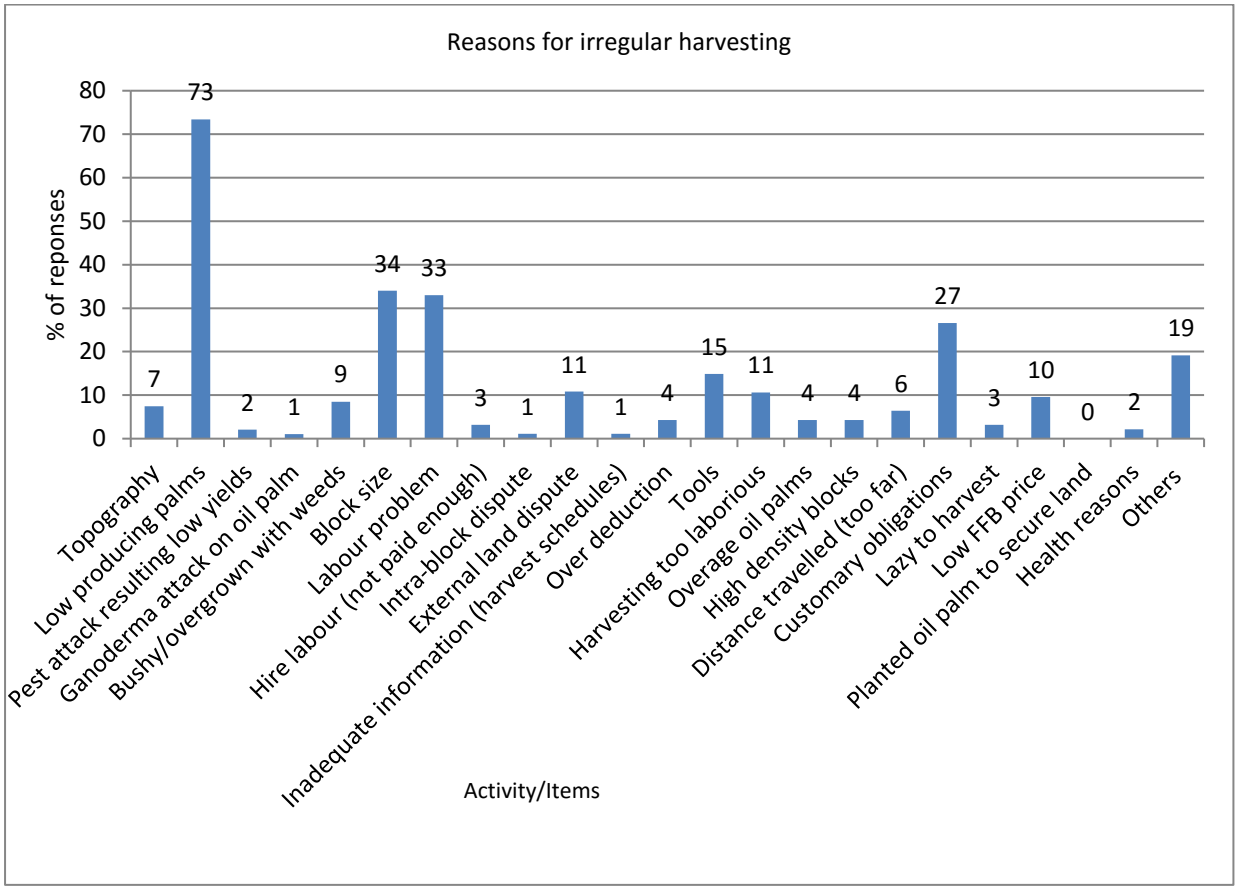

Figure 5 Reasons for irregular harvesting

Block Management

Harvesting and malpractices already discussed in previous sections were verified by auditing the block hygiene and management standards on the surveyed blocks. A scoring system was used to determine the block standard. The scores were; 1 for Poor standard, 2 for Good standard (average) and 3 for BMP Standard (Best). Standard on pruning, frond stacking, and weeded circle were used to determine if harvesting was done (Table 4).

The average score for Cenaka Division (Division 1) was below the project average but harvesting was done. From all the block inspections, 35% to 50% of the blocks had poor standards in pruning and weeded circles while 72% of blocks had proper frond staking (some frond stacked but not of BMP standard). Maututu Division (Division 2) had scores well above the project averages frequency (Table 4). About 46% of the blocks adhered to BMP pruning standards by retaining two fronds below the oldest black bunch. Frond stacking was of good standard (64%), however 64% had poor weeded circles. As for Meramera Division (Division 3), the score was slightly above the project average indicating that harvesting was done. About 33% of blocks maintained proper pruning standards, 34% stacked their oil palm fronds properly and 40% of the blocks had clean weeded circles.

In overall, the block assessment revealed that 91 (98%) of the blocks in all three divisions were of reasonable (average) standards which can be further improved to BMP level. The current block standards also indicated that harvesting was done but crop was shifted resulting in declining harvesting frequency.

Table 4 Project and divisional average assessment scores

Average Score	Pruning	Frond Stacking	Weeded Circle	Average
Cenaka Division (Division 1)	1.5	1.7	1.7	1.6
Maututu Division (Division 2)	1.8	2	2	1.9
Meramera Division (Division 3)	1.6	1.9	1.9	1.8
Project Average	**1.6**	**1.8**	**1.8**	**1.7**

Picture 2 Smallholder VOP block at Tauke in Meramera Division Bialla.

CONCLUSION

Harvesting is an important activity but not considered a priority amongst the VOP farmers as most of their time is spent on social and cultural activities. Skip harvesting was practised by over 90% and the three main reasons for skip harvesting were low producing palms (86%), needing money for customary obligations (47%) and other social/ spiritual commitments (38%). More than 60% of the respondents practiced crop shifting mainly to contribute to customary obligations (45%) and meet social or spiritual commitments (44%). Irregular harvesting is widely practised as a result of low producing palms (73%), block size (34%), labour problem (33%) and customary obligation or commitments (27%).

The block inspections indicated that 90% of the blocks in all three divisions were of “average” standard. The block inspections also revealed that harvesting was done in 86 blocks (94%) but the crop was shifted to others blocks or nearby community plantings or estates.

The foremost reason for low harvesting frequency was low producing palms. The issue of low crop can be alleviated with implementation of best management practices, regular fertiliser application and regular harvesting. OPRA applied research on the on-farm trials (demonstration blocks) has shown positive results in Bialla demonstrating potential yields of 20 t/ha and above in smallholder blocks. This concept must be rolled out and promoted by both OPIC and Hargy Oil Palm extension.

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