ACCEPTANCE TEST RESULT ANALYSIS

SWING TYPE MACHINE

6. ACCEPTANCE TEST RESULT ANALYSIS

6.1. CLEARANCE DURATION

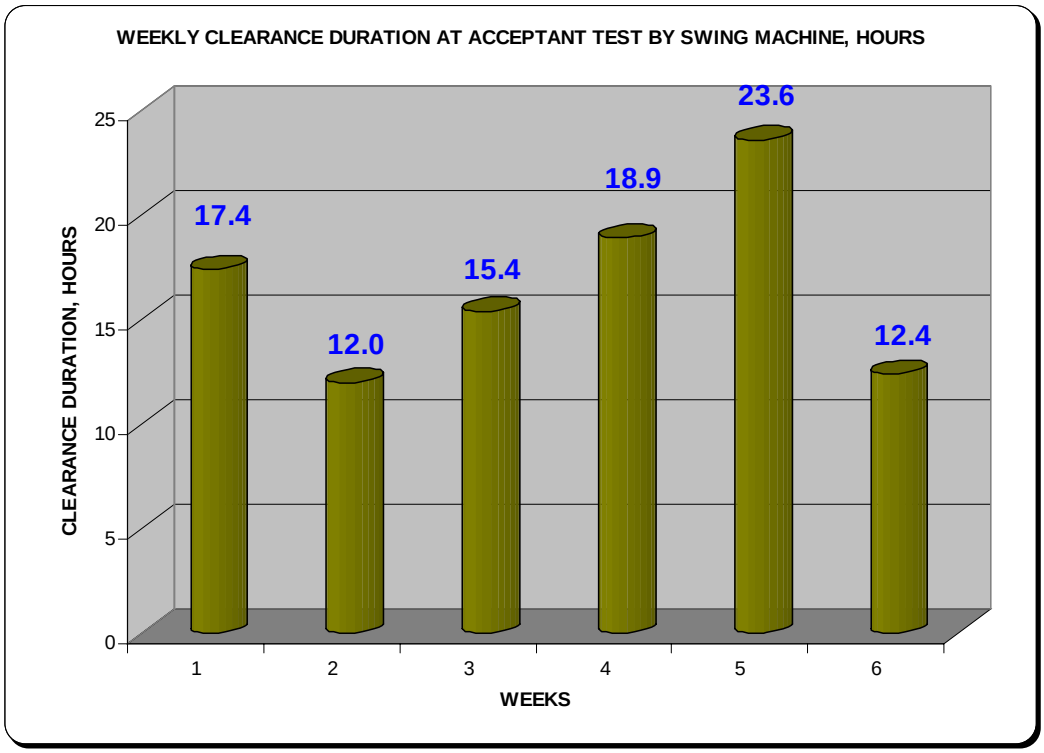

Figure 70: Clearance duration at acceptance test

Demining machine SWING could perform long working hour as long as 23.6 hours per week. During its 26 days of participation (excluding Saturday and Sunday) at acceptance test, it spends 99.7 hours for mine clearance.

AVERAGE CLEARANCE DURATION: 3.8 HOURS/DAY

6.2. TRUE PRODUCTIVITY RATE

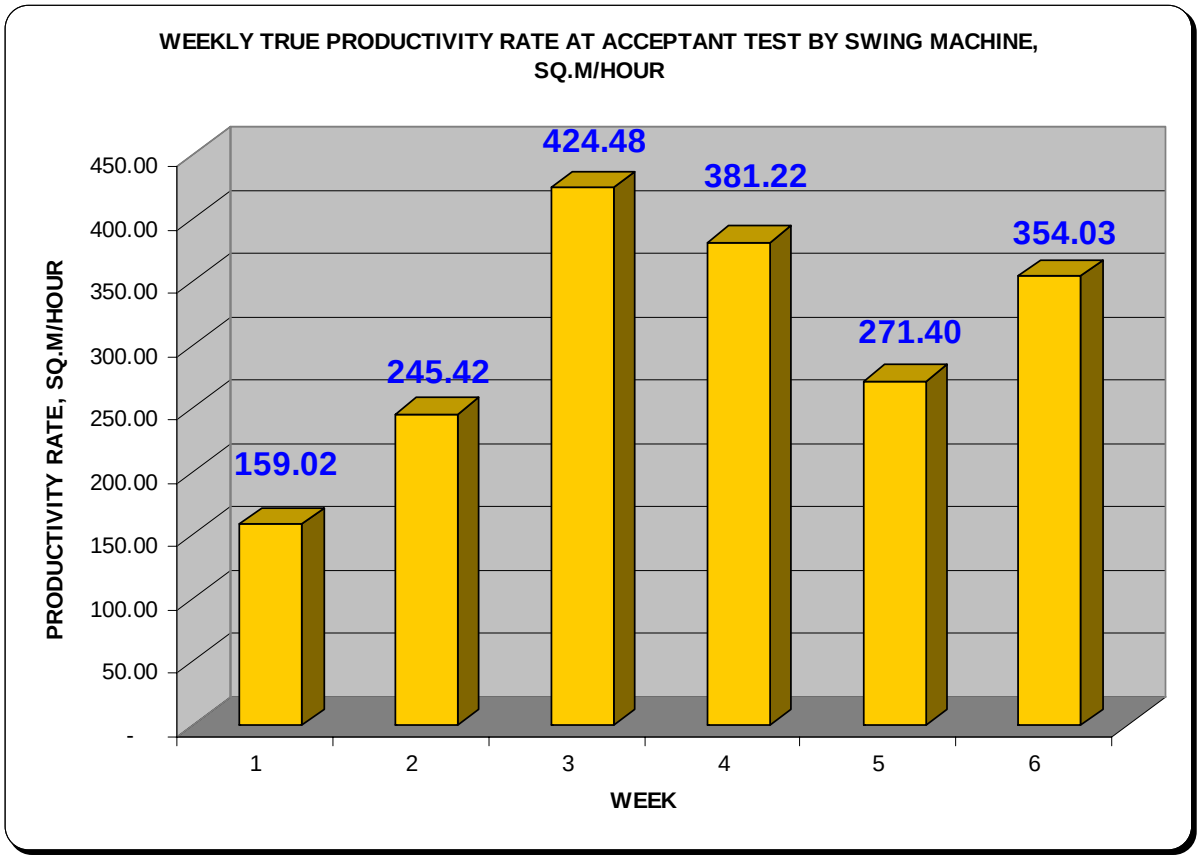

Figure 71: True productivity rate of the machine at acceptance test

The highest productivity rate of demining machine SWING type is 424.48 m^2/hour. During its 26 days or 99.7 hours of acceptance test, demining machine SWING type could produce 30,249 m^2 of true productivity. Therefore:

MAXIMUM TRUE PRODUCTIVITY RATE: 424.48 M^2/hour
AVERAGE TRUE PRODUCTIVITY RATE: 303.4 M^2/hour

6.3. THE COMPARISON OF PRODUCTIVITY AND TRUE PRODUCTIVITY

Table 47: the comparison of clearance and true clearance productivity

DESCRIPTION	TOTAL CLEARANCE SIZE	COMPARISON
CLEARANCE PRODUCTIVITY	30,259 m^2	100%
TRUE CLEARANCE PRODUCTIVITY	30,249 m^2	99.97%

Normally demining machine could not clear all its clearance area because of obstacle such as trees, hill or hole. In the above table there are more than 10 m^2 out of 30,259 m^2 account for 0.03% of the total area that swing type could not be able to clear. Meaning that swing machine could clear the minefield up to 99.97% of the total target area. Thus it requires additional man power to clear the remaining un-cleared spot.

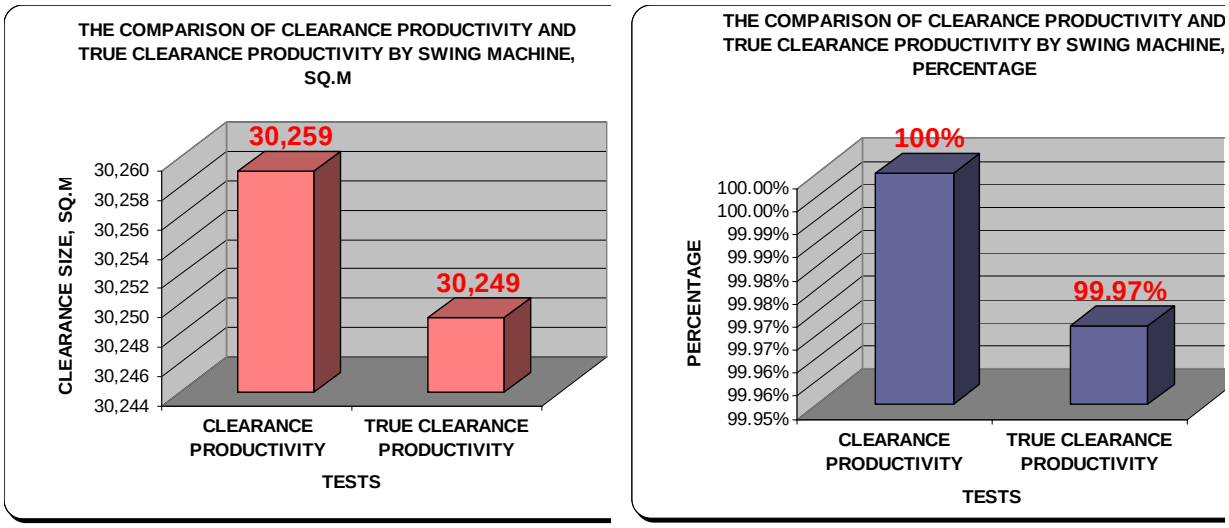

Figure 72: the comparison of true clearance productivity

TRUE CLEARED AREA: 99.97%
UN-CLEARED AREA OR AREA FOR ADDITIONAL CLEARANCE: 0.03%

6.4. FUEL CONSUMPTION

Table 48: fuel consumption used by demining swing type machine at acceptance test

No.	Clearance time, hour	Fuel Consumption, Liters	Fuel Consumption rate, Liters/hour
1	9.5	325	34.2
2	9.9	340	34.3
3	13	360	27.7
4	11.6	305	26.3
5	5.5	300	54.5
6	8.2	400	48.8
7	10.5	360	34.3
8	9.1	380	41.8
9	10	350	35.0
10	13.3	460	34.6
11	4.2	200	47.6
TOTAL	104.8	3780	36.1

Note: because of fuel consumption is used for mine clearance and transportation, therefore, total of test duration of 104.8 hours is being used for the calculation.

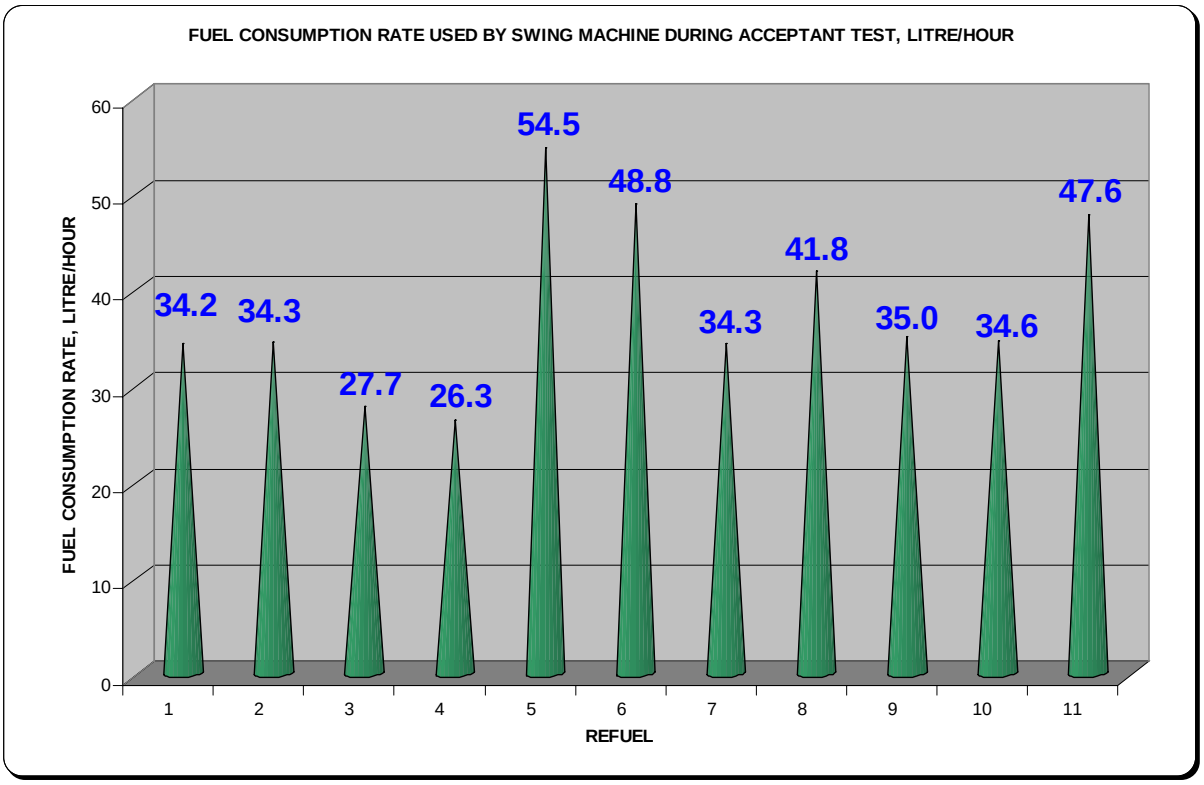

Figure 73: Fuel consumption rate

Demining machine push type, spend 104.8 hour to clear landmine and transportation. During this period, it consumes 3780 liters of fuel. Therefore:

FUEL CONSUMPTION RATE: 36.1 LITERS/HOUR

6.5. PRODUCTIVITY – FUEL RATIO

Table 49: Productivity of the machine and fuel consumption

No.	Clearance time, hour	Fuel Consumption, litre	True Productivity, m^2	Productivity - fuel ratio, m^2/litre
1	9.5	325	1,711	5.26
2	9.9	340	1,532	4.50
3	13	340	3,887	11.43
4	11.6	360	5,120	14.22
5	5.5	305	2,295	7.52
6	8.2	300	3,390	11.30
7	10.5	360	3,320	9.22
8	9.1	380	2,835	7.46
9	10	350	1,770	5.06
10	13.3	460	2,165	4.71
11	4.2	200	2,225	11.13
TOTAL	104.8	3,780	30,249	8.00

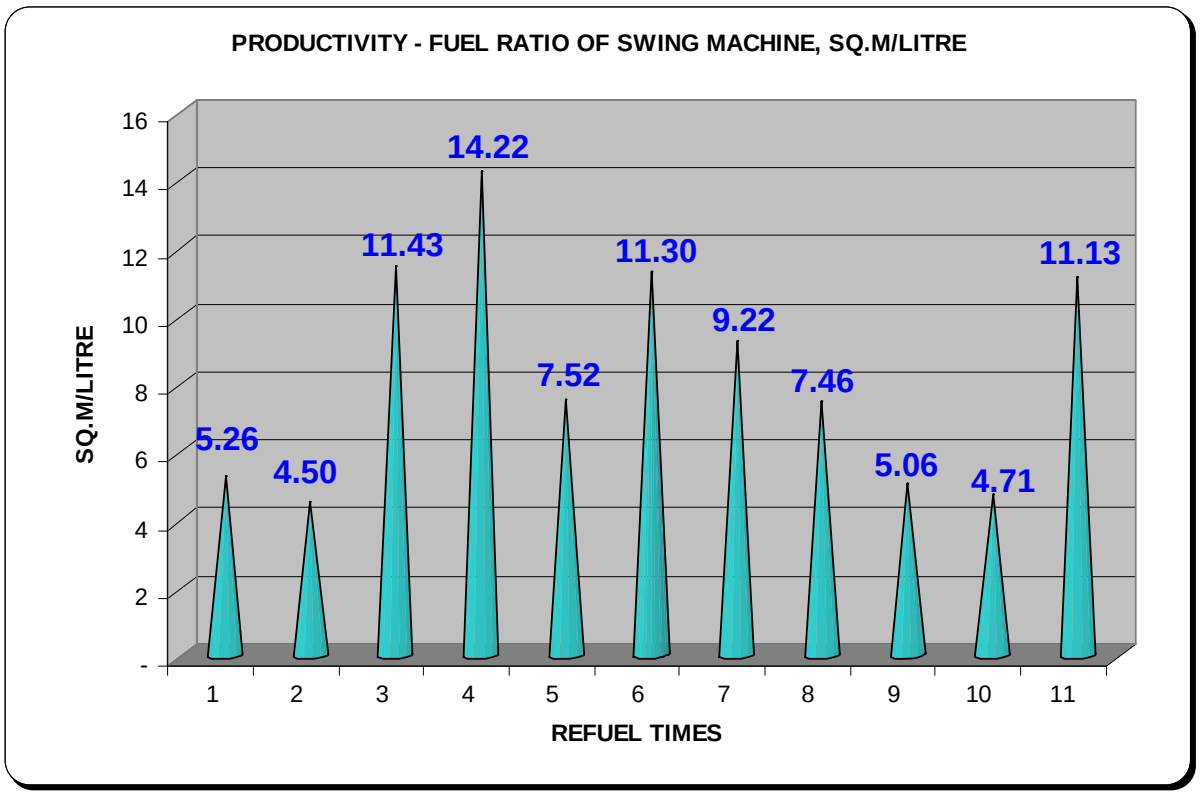

Figure 74: Productivity – fuel ratio

To clear 30,249 m^2 of landmine, demining machine SWING type consume 3,780 liters of fuel, therefore average productivity – fuel ratio is:

PRODUCTIVITY – FUEL RATIO: 8 M^2/LITER

6.6. THE REPAIR OF A DEMINING MACHINE SWING TYPE

Table 50: repair activities

Week	Weekly Repair, times	Weekly Repair, hour	Weekly True Productivity, m^2	Weekly Clearance duration, hour
1	2	3.5	2,767	17.4
2	3	17	2,945	12
3	3	15	6,537	15.4
4	3	9	7,205	18.9
5	2	3.3	6,405	23.6
6	0	0	4,390	12.4
TOTAL	**13**	**47.75**	**30,249**	**99.7**

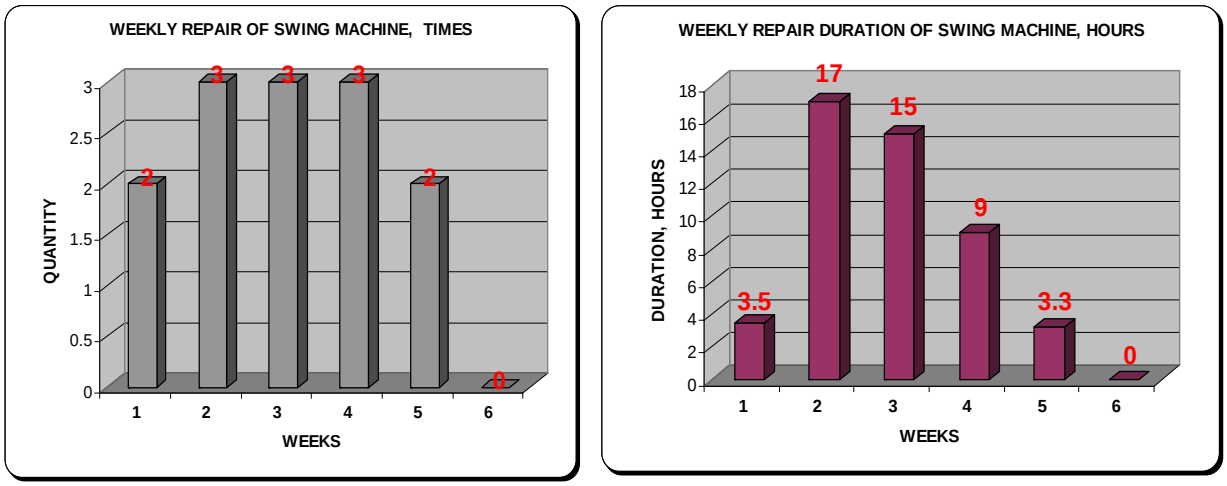

Figure 75: Repair activities of the machine

Demining machine SWING type requires 13 repair times during 6 weeks of the acceptance test. During its peak of operation, it requires 3 times per week to repair. During week 2 it takes 17 hours to repair the machine. The total number of repair of demining machine PUSH type during 6 working weeks is 13 times and it takes 47.75 hours to complete. Therefore, the average of repair duration per week is 3.7 hours/week. However, all of the repair could be done by manual on site (at field).

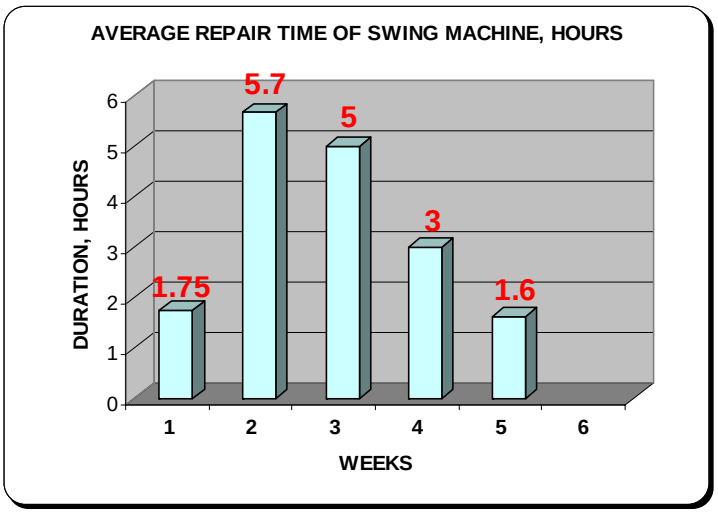

Figure 76: Average repair time of the machine

MAXIMUM REPAIR: 3 TIMES/WEEK
MAXIMUM REPAIR DURATION: 17 HOURS/WEEK
AVERAGE REPAIR DURATION: 3.7 HOURS/WEEK

6.7. AVERAGE PRODUCTIVITY FOR ONE HOUR REPAIR

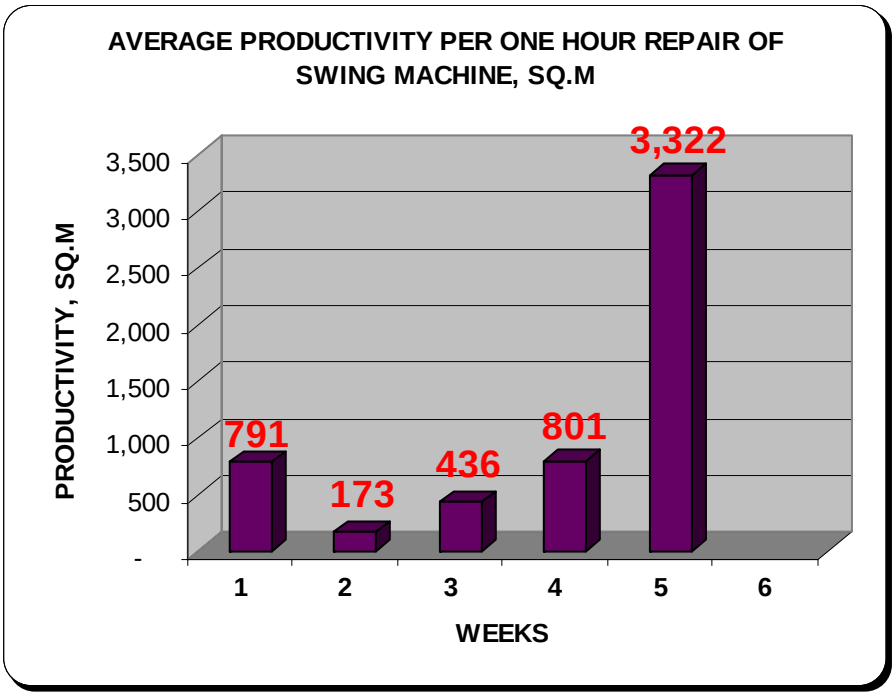

Figure 77: The relationship between productivity and repair

Total productivity for a demining machine SWING type is 30,249 m^2 and to achieve this clearance productivity, it takes 47.75 hours to repair the machine. Therefore:

AVERAGE PRODUCTIVITY/REPAIR: 633 m^2/repair hour

6.8. AVERAGE CLEARANCE DURATION FOR ONE HOUR REPAIR

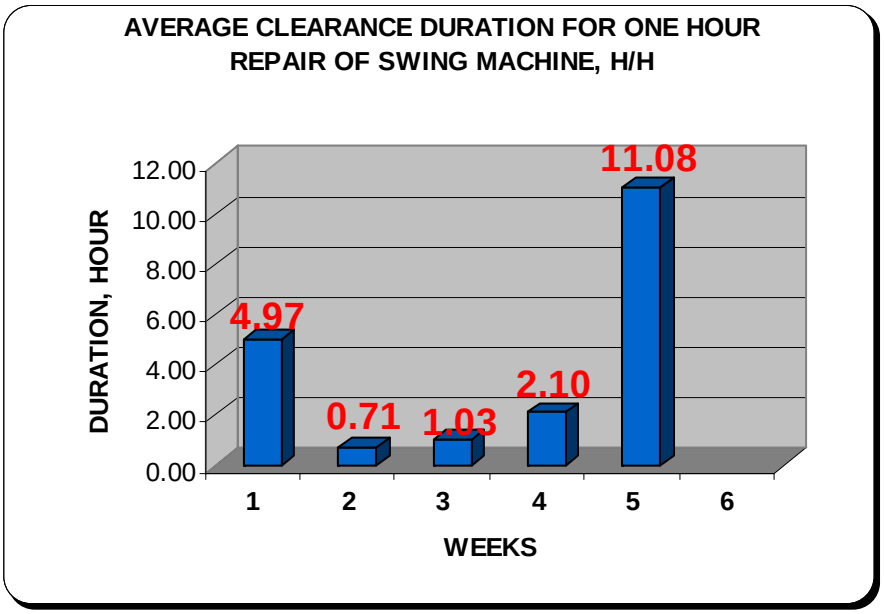

Figure 78: Average clearance duration

Total clearance duration of demining machine SWING type is 99.7 hours. Within this period, it takes 47.75 hours to repair. Therefore, for one hour repair, machine could work as long as 2.09 hours.

AVERAGE WORK/REPAIR: 2.09 work hour /repair hour

7. COMPARISON BETWEEN PERFORMANCE AND ACCEPTANCE TEST

7.1. A COMPARISON OF TRUE PRODUCTIVITY RATE, M^2/HOUR

Table 51: True productivity rate at performance & acceptance tests

Test	True Productivity rate, m^2 /hour	Comparison
PERFORMANCE TEST	357.15	100%
ACCEPTANCE TEST	303.40	85%

According to the above table, demining machine SWING type is having difficulty to clear landmine at acceptance test area where vegetation is fully grown. It lost 15% of its productivity rate in comparison with its productivity rate at performance test area (dry, wet and light bush test area).

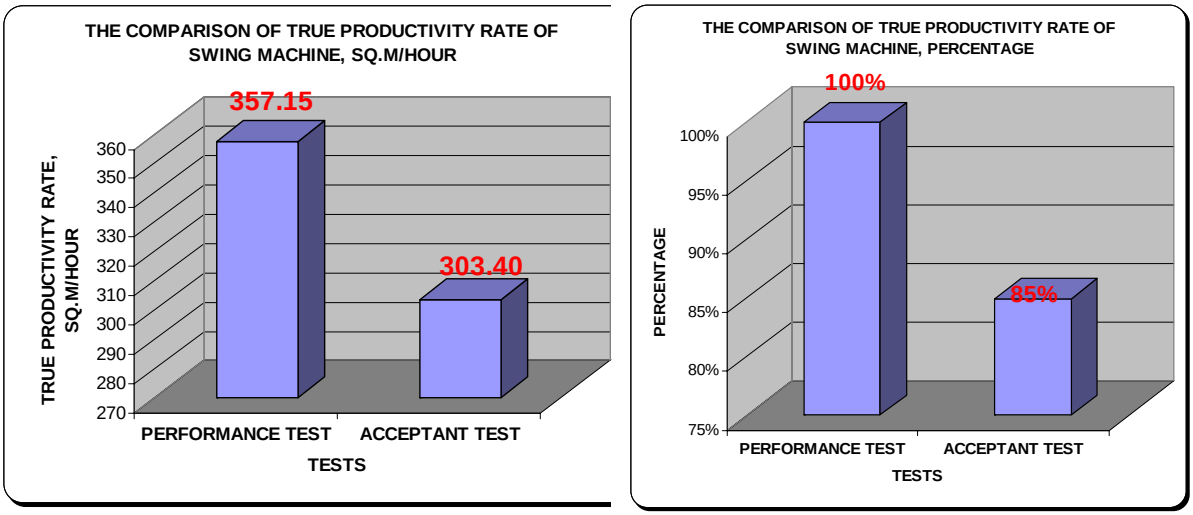

Figure 79: the comparison of productivity rate

During performance test at Siem Reap province, within one hour, demining machine PUSH type could clear landmine 357.15 m^2. Within the same period of time, it could clear only 303.40 m^2 during acceptance test at Battambang province. This represent the lost of 15% of its clearance capacity.

TRUE PRODUCTIVITY RATE IS REDUCED BY 15%

7.2. A COMPARISON OF FUEL CONSUMPTION RATE

Table 52: A comparison of fuel consumption rate at performance & acceptance tests

Test	Fuel consumption rate, litre/hour	Comparison
PERFORMANCE TEST	34.54	100%
ACCEPTANCE TEST	36.07	104%

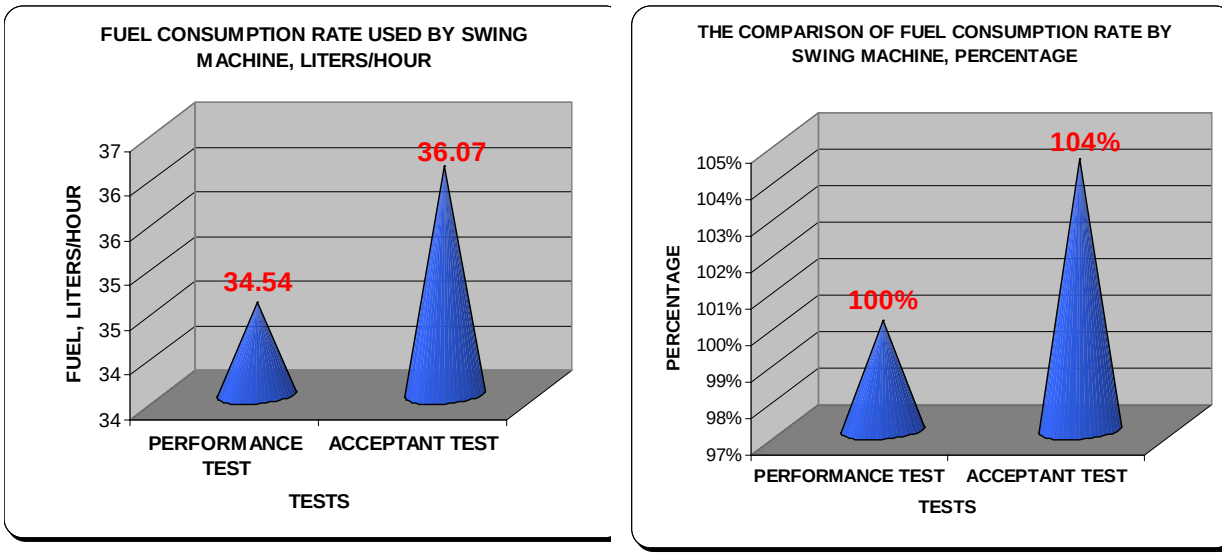

Figure 80: the comparison of fuel consumption

Even it loses its productivity rate, but in contrast, fuel consumption rate is increased by 4% from 34.54l liters/hour to 36.07 liters/hour (in comparison with fuel consumption rate between performance and acceptance tests).

FUEL CONSUMPTION IS INCREASED BY 4%

7.3. A COMPARISON OF PRODUCTIVITY – FUEL RATIO

Table 53: A comparison of productivity-fuel ratio at performance & acceptance tests

Test	Productivity - fuel ratio, m^2 /litre	Comparison
PERFORMANCE TEST	10.34	100%
ACCEPTANCE TEST	8.00	77%

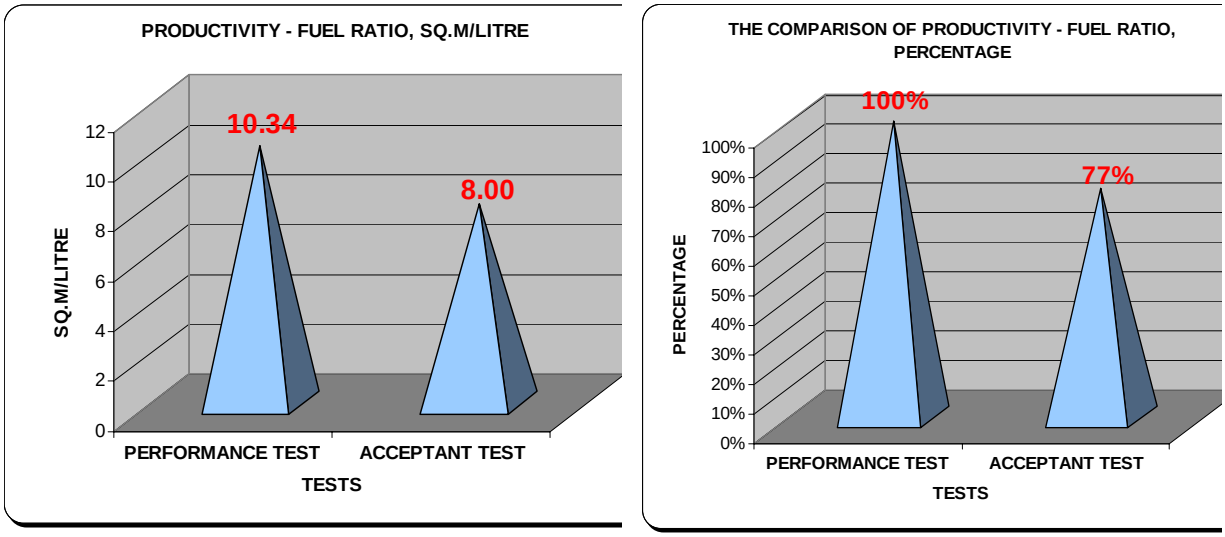

Figure 81: A comparison of productivity – fuel ratio at performance & acceptance tests

The figure in the table indicates that during performance test at Siem Reap province, demining machine swing type could clear up to 10.34 m^2 before it consume 1 liter of fuel. However, during acceptance test at Battambang province, the machine could clear only 8 m^2 before it consumes 1 liter of fuel. This represents a decrease of 33% (reduce to 77%) of clearance area for the consumption of 1 liter of fuel.

PRODUCTIVITY – FUEL RATIO IS DECREASED BY 33%