

using earmuff and ear plugs, noise could be reduced by 15 db (A) to 30 db (A) [13].

C. Output capacity (kg / time)

The average output capacity trimmer dried leaves of onion bulbs was 134.38 ± 5.18 kg/h. Capacity values obtained indicate that the machine has been able to increase the capacity become 13 times bigger than manual one (± 10 kg / hr).

D. Percentage of trimming, %

Percentage of trimming on this study consisted of trimming efficiency, percentage of leaves which were not trimmed, impurities, and loss (Fig. 3). Efficiency trimming obtained was $70.80 \pm 0.81\%$. However, this pruning efficiency needed to be improved because there were $19.58 \pm 0.31\%$ shallot bulbs that their dry leaves had not been cut. This was likely due to the nature of the brush trimmer was not rigid which led less friction between the brush with shallots. The machine needed to be repaired, especially on the brush in order to improve trimming efficiency. Meanwhile, the dried leaves and releases outer skin layer of shallots bulb as well as dust and soil were classified as impurities. Dried leaves of shallot bulb (moisture content $40.84 \pm 0.97\%$ w.b) were the largest component of impurities. However, the percentage of shallot bulbs losses was less than 2%.

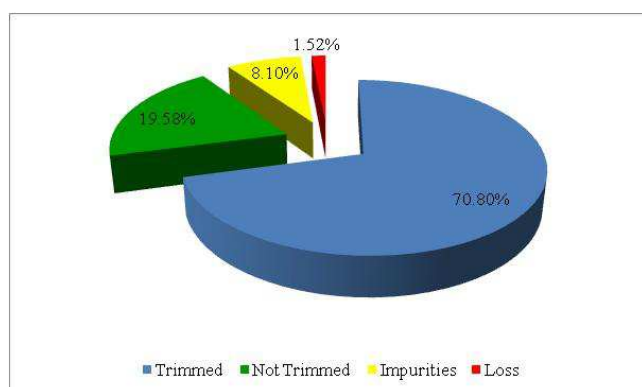


Fig 3. Percentage of trimming

E. Cost of trimming, IDR

Cost of trimming the dried leaves of shallot bulb was IDR 73.47 / kg which were much cheaper than the manual method (IDR 500 / kg). On this analysis, the straight-line method was used in calculating the cost of depreciation with investment interest rate of 12%.

IV. CONCLUSIONS

Trimmer machine dried leaves of shallot bulb have been able to work in accordance with its function. However, increasing the efficiency of pruning needs to be done in order to obtain a better technical performance. One effort that could be done was replacing the brush with a material that more rigid nature.

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