ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

The Study of the Effect of the Rotational Speed and the Horizontal Distance Fingertips to Nose on the Head Losses of Wheat Stripping

Amin Goli*, Abdoljalal Khojamli, Javad Khazaei, Shahriar Kouravand, Gholamreza Chegini

Department of Agrotechnology, College of Aboureyhan, University of Tehran, Tehran, Iran

Abstract: Wheat is one of the major food source for the people of *Iran*. Wheat harvesting methods traditionally have large losses that to reduce it, use of stripping. In this study developed a head stripper was designed and built in accordance with agricultural land in *Iran*. Then, to test and evaluate the effect of the rotational speed and the horizontal distance fingertips to nose on the loss of seed shattering , made head stripper that was bring them into wheat lands in the city of *Gonbad* in *Golestan* Province. Analysis of variance showed that the effect of the rotational speed and the horizontal distance fingertips to nose and as well as their interaction on seed shattering losses and spikes was significant at 99% confidence level.

Keywords: Distance, Fingertips, Nose, Rotational speed, Stripper.

I. INTRODUCTION

Wheat Scientific name *Triticum* is one of the major food source for the people of Iran. This product, either directly or indirectly, 75% of the world population involved in the food pattern. Accordingly, although Iran is about 1% of the world's population, but average per capita consumption of around 220 kg have been reported in Iran [1]. The product cultivated in both irrigated and rained. The total area under cultivation in the 94-93 crop year, equivalent to 6 million. 200 thousand hectares and an annual production of 10 million tonnes has been reported that About 1.3 million of this amount is considered part of harvesting losses [2]. The amount of losses is at odds with the objectives of agriculture in achieving self-sufficiency. Loss of losses due to non-compliance combines conventional Iran could combine with the imported Iranian fields [1]. In general, crop waste can be divided into three sections that include crop waste, waste harvest and post-harvest. Harvest waste can due to lack of using combine or late harvesting product. Late harvest crop losses could increase loss [3]. There are several different methods to reduce grain loss losses that one of these methods, is mechanical methods. In this way, the plagiarist is a priority. This method of harvesting a few years has become popular in European countries [4]. Combine harvesting method used is that, unlike conventional combine, from consuming the product in a hole to cut the crop clusters, So that only the cluster logs and stems remain on the ground [5]. In Fig. 1 is shown how to harvest in this type combine.

The benefits of head Stripper combine to combine traditional and customary include: Failed to create more cargo due to lack of cutting and their entry into crushing, Combine's forward speed more than the absence of sieves to seven kilometers per hour filters, reduce fuel consumption, reduce wear of parts and increase field capacity because of not entering combine straw, maintain soil moisture and erosion control, water and soil [6-8], More simple structure, maneuverable and can be used in small farms. As Fig. 1 shows, in this method, only the cluster or grain crop is harvested and shoot without shifting the pitch remains to be done on it. It combines a cylindrical cluster of three main

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

parts of stripper rotor, the nose is attached to the hood and tank. The main task is harvesting the stripper rotor cylinder [9].

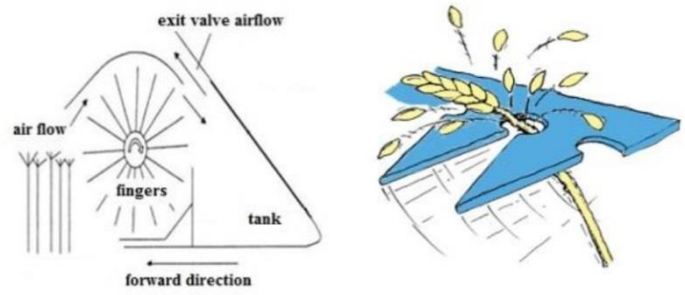

Fig. 1. Shows a schematic of the principle grain harvester head Stripper [6,7].

Combine stripping the grain harvest, stripping mainly consists of four to eight series cylindrical shoulder on each shoulder, tooth with the same design, which has taken action to do [5]. As shown in Fig. 1, spin the cylinder stripping in the opposite direction to move forward Causes the stems are placed between fingers and it just stuck and dug in the cluster [9]. The main reason is that the finger holes separating the seeds inside diameter of the hole is so big that stem finger can easily pass through it and so small that it stuck inside the ear or grain product range and easily plucked by tooth, and the back side of the tank combines driven [10]. Combine optimal function stripping important parameters which influence include: Combine ground speed, shaft rotational speed stripping, stripping from the ground height of the cylinder, cylinder diameter, number and shape of the tooth, the distance between the tip of the tooth to the tip of his nose and angle of arrival to the product's tooth [11]. The horizontal distance between the tip of the finger to the tip of nose, is one of the most important parameters that should be considered in the design combines head stripper. These products by the tooth have much impact on the correct perceptions. These are in fact decisive position in which the stem axis is perpendicular to the ground. If the shoot is become too bend, the tooth may shoot before picking clusters collide and break it and causes to shattering the clusters. If this angle is too small, tooth cannot involved well with the product and to isolate clusters [11]. This distance mean, the horizontal distance between the tips of the finger to the nose tip deviation, in addition to the angle of the shoot while entering the head can also alter the amount of intake air into the head. In fact, the less the distance, velocity, and then input into the head may increase or decrease. Consequently increase or decrease the velocity and discharge into the head, velocity and discharge head is changed, which can also be effective in the optimal functioning.

The shaft rotational speed of stripping can significantly increase or reduce the loss of seed shattering. If the rotational speed of the cylinder of a greater extent, increase the efficiency of the device causes the loss of seed shattering down. Also, if the rotational speed of the cylinder from a lesser extent, the low speed will cause a lot of cylindrical clusters are not arranged by thumbnails and clusters arranged losses rise that this will bring down the performance of the system [12].

The rotational speed of the cylinder and the horizontal distance to the tip deflection fingertips changes also affects air pressure inside the head, stripping spin the cylinder, creating a pressure difference between the inside and outside of the head which the pressure inside the head can have a positive or negative effect on casualty loss [13]. That is a difference of pressure (air intake) that can cause clusters after separating from the stem to the cylinder and tank guided stripping (If the suction head is small enough to be driven into the cluster) and can be so (giving air) after separation of cluster stems not directed toward the rear of the tank and on the fall (if the blower is deliverability) [14].

For post-harvest by tooth behind the combine properly to the tank, transmission, air pressure in different parts of the head (incoming, internal and outgoing head) there should be balanced enough to make this happen. This pressure difference as above can be said to be effective to loss on casualties. In fact, if suction is so that the clusters to be

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

directed toward the rear of the tank and reduce the casualty loss if clusters giving cause to be thrown forward losses increased loss [13-15].

Fig. 2. Head stripper cereal made by Nikravesh [16].

II. MATERIALS AND METHODS

New stripper designed and built schematically in Figs. 2 to 5 and an actual sample and its components is presented in Fig. 6.

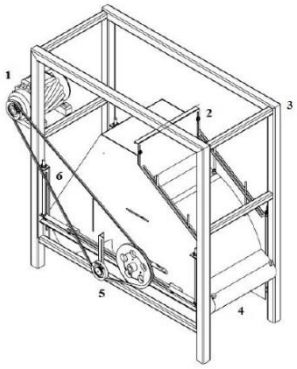

Fig. 3. Shows a three-dimensional view of wheat Stripper head designed and built, 1. Electric motor, 2. Valve air currents, 3. Chassis, 4. Nose, 5. Monetary and belt and 6. Height adjustment screws.

After the example of the head Stripper according to Iran's agricultural land was developed, it was decided to conduct tests and ear shattering losses are assessed. At this stage, the effect of drum rotational speed and the horizontal distance the tip of the finger to the tip of the nose to the loss stripping grain loss and cluster tests were performed and the results were recorded.

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

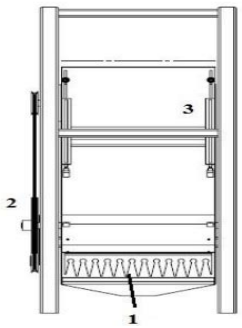

Fig. 4. Shows the front view of stripping designed header, 1. Finger, 2. Monetary and belt 3. Height adjustment screws.

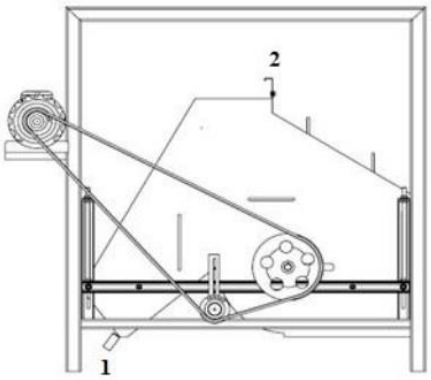

Fig. 5. Shows the side view of the head Stripper designed, 1. Wheat from the tank drain valve, 2. Valves adjust the output air stream.

Fig. 6. Shows a general view of the head stripper designed and built.

In this experiment, was a constant feed rate and up to four kilometers per hour. As well as stripping cylinder center distance of 600 mm from the tip of the nose from the ground surface was 570 mm. Also, the number four cylinder shoulders (due to the low density of the wheat plants) which were for off-center. The tests was conducted in the spring and in the city of Gonbad in Golestan province. The plot experiment in a completely randomized design with three replications eaten, the effect of the horizontal distance between the tip of the nose to the tip of the finger in three levels (10, 11, 12 cm) [11,17] and a rotational speed of the cylinder stripping in three levels (600, 650 and 700 rpm) [4,11,12,15,18-22] was the loss of seed shattering and clusters. Kleiner et al. were of the opinion that the minimum horizontal distance between the tips of the finger to the nose should have been 9 cm [11]. Lan Yuan reported the optimal distance cylindrical center stripping value from 520 to 673 mm from the ground [23]. Adisa considered the distance from the ground to the tip of the nose 480 and 530 mm [18]. Wheat cultivars used in this study of N-81-18, which tested 11 crop moisture (wet basis), respectively. Humidity environment was measured using a hygrometer with an accuracy of 0.1 that of the Rh 3.29. Survey research conducted in the field of head Stripper combine that success in

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

this type of combine harvesting operations is evaluated based on the quality of stripping unit. The unit also arranged clusters based on the quality and quantity of seed shattering is evaluated.

III. RESULTS AND DISCUSSION

The results of these tests come in Figs. 7 to 10. Fig. 7 also in view of agricultural land after the harvest by stripping head as well.

Fig. 7. Earth view of agricultural land after harvest by head stripper designed and built.

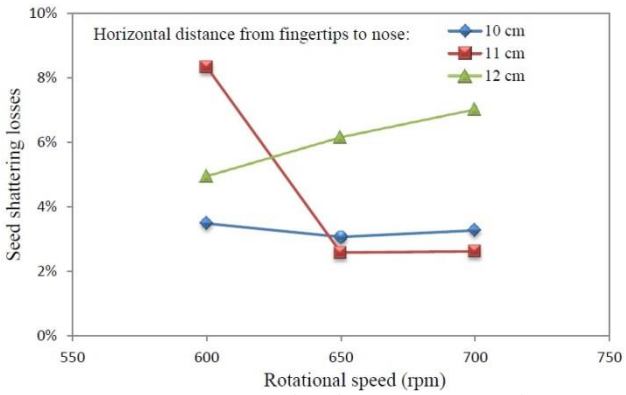

Fig. 8. Shows the effect of varying the rotational speed and intervals of the fingertips to the tip of seed shattering losses stripping wheat in the head.

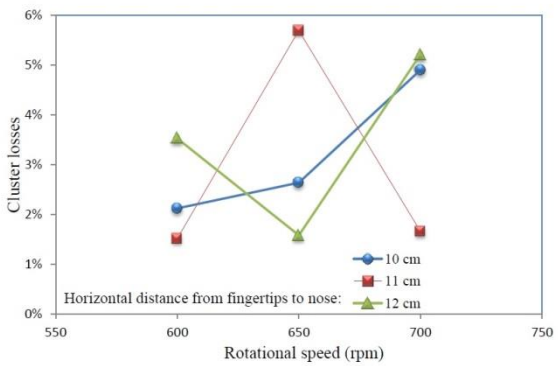

Fig. 9. Shows the effect of varying the rotational speed and distances of fingertips to the tip of the spike in casualties stripping wheat head.

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

In this research the difference of variable horizontal distance and a rotational speed of the finger to nose and ear shattering losses were examined that the results of variance analysis indicated in Table 1. The results of analysis of variance for head losses stripping wheat showed that the independent variables, and stripping drum rotational speed horizontal distance fingertips to the tip of seed shattering losses and losses were significant cluster with 99% confidence level.

Table 1. The results of analysis of variance for head losses stripping wheat.

Average of squares		Degrees of freedom	Sources of changes
Cluster losses	Loss of seed shattering		
4.86**	7.65**	14	Model
0.53**	6.64**	2	Drum rotational speed stripping (a)
0.03^{ns}	0.02^{ns}	6	Error (a)
5.38**	16.13**	2	The horizontal distance from fingertip to the nose (b)
14**	14.50**	4	ab
0.01^{ns}	0.01^{ns}	12	Error
3.34	2.02		Coefficient of variation

** There are significant at 1%, * significant differences in the level of 5% and ns no significant differences between different levels

Table 1 shows the results of analysis of variance effect of drum rotational speed fingertips stripping and the horizontal distance to the loss of seed shattering the nose.

To see adjectives that was measured (loss of seed shattering and loss of cluster) have what to do with correlation coefficients were calculated for these two. Tables 2 and 3 show the correlation coefficient and the mean, standard deviation, total, minimum and maximum amount of casualties and loss of seed shattering spikes. As Table 2 shows the correlation between the losses of seed shattering and cluster there are few casualties. This correlation is partially reversed. The relationship between the two is not significant at the level of 5% and 1%. This means that by increasing the shattering losses, losses increase or decrease the cluster behavior is not regular. For example, by increasing the rotational speed and the horizontal distance fingertips to increase nose shattering losses and casualties dropped cluster. Perhaps to justify that the horizontal distance fingertips nose grows, Clusters in the small space between the finger to nose caught less and less mortality cluster detachment, If you have problems with shrinkage of this increase will occur and the seeds are easily transferred into the tank.

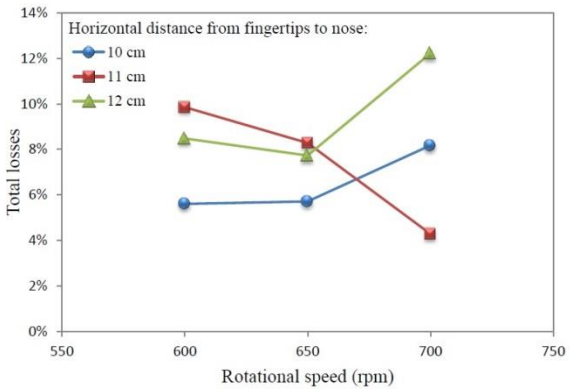

Fig.10. Shows the effect of varying the rotational speed and distances of fingertips to the tip on the total losses stripping wheat in the head.

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

Table 2. Shows the correlation between the loss of seed shattering and loss of stripping wheat spikes in the head.

The correlation coefficient	Loss of seed shattering (A)	Cluster losses (B)
Loss of seed shattering (A)		0.21 ns
Cluster losses (B)	0.21 ns	

** There are significant at 1%, * significant differences in the level of 5% and ns no significant differences between different levels.

Table 3. Statistics for losses and loss of seed shattering spikes.

Highest (%)	Lowest (%)	Total	Standard deviation	Average (%)	Number	Variable
8.34	2.58	41.47	2.11	4.61	9	Loss of seed shattering (A)
5.69	1.51	28.84	1.68	3.2	9	Cluster losses (B)

Effects comparison of means between losses (loss of seed shattering and clusters) and a rotational speed of the cylinder plagiarizing on two levels 650 and 700 rpm showed a significant difference in the level of 1% (Table 4). Most of shattering losses at a rotational speed of 700 rpm to average 6.04% and the lowest rotational speed of 600 rpm for an average of 3.27%. Most losses in a rotational speed of 700 rpm cluster average 3.44% and the lowest rotational speed of 650 rpm for an average of 2.96%.

Table 4. Shows the comparison of mortality and loss of seed shattering drum rotational speed stripping cluster at different levels.

Cluster losses	Loss of seed shattering	Stripping drum rotational speed (rpm)
3.22^{ab}	3.27^{c}	600
2.96^{b}	4.51^{b}	650
3.44^{a}	6.04^{a}	700

Effects comparison of means between losses (loss of seed shattering and clusters) and the horizontal distance between the tip of the finger to nose 10 and 11 cm showed significant differences in the level of 1% (Table 5). Most of shattering losses in horizontal distance of 10 cm from nose to the tip of the finger average of 5.59% and a minimum horizontal distance of 11 cm fingertip to the nose for an average of 3.93%. Most losses in a horizontal distance of 11 cm spikes finger to nose average 3.30% and the lowest horizontal distance of 10 cm from nose to the tip of the finger average of 2.38%.

Table 5. Comparison of losses and loss of seed shattering cluster at different levels of horizontal distance to fingertips.

Cluster losses	Loss of seed shattering	The horizontal distance from fingertip to the nose (cm)
2.38^{c}	5.59^{a}	10
3.30^{b}	3.93^{c}	11
2.92^{a}	4.3^{b}	12

In each column, the average level of each factor with a common letter are not significantly different at the level of 5%.

The interaction between variables, and stripping drum rotational speed horizontal distance fingertips to the tip of seed shattering losses and losses were significant spikes in levels (Table 6). Most casualties shattering the rotational speed of 650 rpm with a horizontal distance of 10 cm fingertip to the nose, which amounts to an average of 8.34%. The lowest seed shattering losses related to the rotational speed of 650 rpm with a horizontal distance of 11 cm fingertip to the nose of the value of the average of 2.58%. The highest mortality cluster of rotational speed of 650 rpm with a horizontal distance of 11 cm fingertip to the nose, the average amount was equal to 5.70%. The lowest mortality cluster

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

of rotational speed of 650 rpm with a horizontal distance of 10 cm fingertip to the nose, the average amount was equal to 1.51%.

Table 6. Comparison of the effects of rotational speed dual layer fingertips stripping and the horizontal distance to the tip of seed shattering losses and casualties cluster.

Cluster losses			Loss of seed shattering			Distance fingertips to nose\rotational speed
700	650	600	700	650	600	
3.53c	1.51f	2.12e	4.95d	8.34a	3.48e	10
1.58f	5.70a	3.64d	6.15c	2.58g	3.07f	11
5.21b	1.66f	4.90b	7.01b	2.62g	3.27ef	12

In each column, the average level of each factor with a common letter are not significantly different at the level of 1%.

Results of regression analysis are depicted in Figs. 11 and 12 and Table 7. As Fig. 11 shows, shattering losses is heavily influenced by the rotational speed of the cylinder was stripping, if the loss was affected very little clusters. In fact, by increasing the rotational speed of the cylinder stripping, with steep losses were rising grain loss if clusters toll was rising very little slope. Wilkins and colleagues coefficient of determination in two different modes to combine travel speed on loss of seed shattering effect on 0.51 and 0.36 respectively which is close to the results of the test.

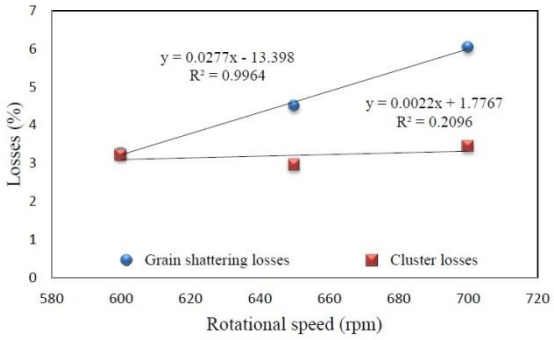

Fig. 11. Obtained regression and clustering for loss of seed shattering in different rotational speeds stripping cylinder.

As Fig. 12 shows, casualty loss decreases with increasing horizontal distance fingertips to nose with a gentle slope, while clusters in the same state with steep losses rising. However, the horizontal distance to the tip of your fingertips should be adjusted so that the large clusters of casualties and the loss of seed shattering is not acceptable to us. As is clear from Table 7, stripping drum rotational speed and linear regression between grain loss at the level of 5% was significant casualties and losses are not significant cluster, in the event that linear regression horizontal distance fingertips to the nose for both losses and loss of seed shattering cluster was not significant at the level of 5%.

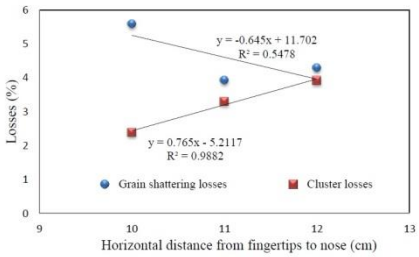

Fig. 12. Obtained regression and clustering for loss of seed shattering in different parts from fingertip to the nose.

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

Table 7. Regression analysis stripping drum rotational speed impact and the horizontal distance to the tip of the finger and ear shattering losses.

Average of square		Degrees of freedom	Sources of changes
Cluster losses	**Loss of seed shattering**		**Drum rotational speed stripping (a)**
0.024ns	3.84*	1	Model
0.09	0.01	1	Error
9.42	2.57		Coefficient of variation
1.17ns	0.083ns	1	The horizontal distance from fingertip to the nose (b) model
0.01	0.69	12	Error
3.7	17.99		Coefficient of variation

According to Fig. 8, we can see that the maximum and minimum horizontal distance of 11 cm seed shattering the tip of a finger to the nose in the rotational speeds of 600 and 650 revolutions per minute that how much they were respectively 8.34 and 2.58%. Peiris also loss of seed shattering his laboratory, for example, gained 12% to 2.5% by optimizing the device's shattering losses [22]. Kalsirisilp the total grain losses in the range of 1.3 to 10.8% obtained which was consistent with results [21].

In other words, the height of the nose hood to increase the horizontal distance from the ground to the tip of the fingertip Which reduces the air flow rate and pressure (dynamic pressure) and the increase in static pressure in front of the head. If less than optimum air velocity in this case it may not be appropriate to transfer the clusters and arranged seeds into the hood which eventually follow toll increase stripping head. In fact, increased pressure inside hood airflow can help to the intake of grains into the hood and prevent their loss. As it evident from Fig. 8, the amount of seed shattering losses for the three horizontal distance fingertips to the tip at a rotational speed of 600 rpm rotational speed than the other. This could be due to the speed of rotation of the cylinder stripping. Low speed cylinder clusters stripping will be picked up later by finger. In fact, ear nose almost completely rejected and later trapped in the finger holes. If the observations made, the best conditions for withdrawal is when the cluster is slightly tilted nose in a collision. The rotational speed of the cylinder stripping should be enough to point the finger at the cluster approach is slightly above the horizontal line is aligned with the center of the cylinder stripping. From Fig. 9 we can see that the highest and lowest mortality cluster related to rotational speeds 650 and 600 rpm with a horizontal distance of 11 cm fingertip to the nose, that how much they were 5.69 and 1.51%. As is evident from Figs. 8 and 9, the rotational speed of 600 rpm at a distance of 11 cm fingertip to the nose, the most shattering losses, but at the same time the lowest mortality cluster distances other than the fingertips to the tip. This may be due to the fact that the drum rotational speed is low enough clusters finger stuck inside the cavity and completely dug up, Due to late harvesting cluster of clusters in collision with nose and prolong the process, the seeds fall on the ground in a collision with nose which increases the loss of seed shattering. But in general, in the distance and a rotational speed of 600 rpm maximum total losses accounted. Peiris the rotational speed of 600 rpm to obtain the greatest losses were consistent with the results of the tests [22]. The constancy of the speed of rotation of the cylinder stripping this reduces the air flow rate and the pressure (static) is the air inside the hood. Thus increasing the air pressure inside the hood causes the grains and clusters tend to fall into the hood. Also, as is evident from Fig. 10, the highest and the lowest total losses related to the rotational speed of 700 rpm with horizontal distances of 12 and 11 cm fingertip to the nose, their amounts, were 12.22 and 4.28%, respectively. Kalsirisilp and Singh total loss amount for products stood at about 4% and the 6.5% reported for the wires [24]. Chegini and Mirnezami news won 3.5% of the total losses obtained were consistent with total losses [15]. Adisa and colleagues achieved total losses to 15.9% of the total mortality was obtained in this test match [12]. Kalsirisilp total casualty's device for lying and standing, respectively, 5.5 and 4% respectively [21]. Adisa also best to drum rotational speed of 670 rpm stripping reported that at this speed, head Stripper had the best performance [18].

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

By changing the rotational speed stripping cylinder, air flow rate and pressure inside the hood changes that could be a contributing factor to consider plagiarizing head losses. If the air flow rate is higher or lower than its optimal value can be increased and spikes shattering losses. In general, the amount of seed shattering in the nose of 12 cm horizontal distance fingertips 1.34 times higher than its average horizontal distance of 11 cm, Finger to nose and 1.88 times higher than its horizontal distance of 10 cm from the nose, fingertips. As well as the overall death toll to 12 cm horizontal distance to the tip fingertips 1.27 times higher than its average horizontal distance of 11 cm fingertip to the nose and 1.46 times higher than its horizontal distance of 10 cm fingertip to the nose. The losses amount to fingertips cluster for horizontal distance of 12 cm on average 1.16 times higher than its horizontal distance of 11 cm fingertip to the nose, And as much as 1.07 times higher than its horizontal distance of 10 cm fingertip to the nose. Losses may arise due to the low number shoulder, since it is bending too much during harvest stem [23]. Analysis of variance showed that the drum rotational speed stripping and horizontal distance fingertips to nose and ear shattering had a significant effect on mortality [22]. The interaction between these two clusters have a significant effect on mortality and seed shattering. Adisa and colleagues also concluded that the interaction between stripping drum rotational speed and height of the center of the ground had no significant effect on mortality [12]. This means that in addition to reducing the amount of losses that should be important to the rotational speed, have yet to fingertip to tip of the importance of the horizontal distance. Because by increasing the horizontal distance fingertips to the tip of the inlet air flow rate was increased, which reduced, But with increasing rotational speed of the cylinder was plagiarizing this slowdown was offset air flow and helped to transport grain and clusters into the head. As Table 1 shows the different levels of stripping cylinder rotational speed and shattering losses and a significant cluster effect. This means that at least there is a significant difference between the two levels of rotational speed. Also, as is evident from Table 1, the horizontal distance between the different levels finger to nose and ear shattering effect on mortality was significant. This means that at least two levels of horizontal distance between fingertips until the nose there is a significant effect. In fact, the significant importance of choosing the correct distance to the tip shows fingertips.

Finally, with regard to Table 6, we can see that interactions between different levels of rotational speed, and the horizontal distance to the nose was significant fingertips. In reality this means that these parameters were simultaneously significant effect on the operation. That must be chosen so that the rotational speed to increase or decrease the horizontal distance finger tips to the nose, air flow rate can be reduced to compensate. Finally, if we want the best performance for the selected device, Should be appropriate to the rotational speed of the cylinder stripping and the horizontal distance appropriate to the nose look fingertips. Here, as in preliminary trials because of the loss of seed shattering losses and cluster achieved, then we must choose the one with the lowest total losses.

In this experiment, the lowest total losses related to horizontal distance of 11 cm nose and fingertips to drum rotational speed of 700 rpm was stripping the amount of which was equal to 4.28%. So here's the best device performance was stripping maximum rotational speed of the cylinder. Here in terms of cost constraints to create different rotational speeds and distances stripping layer to the tip of your fingertips. There were limitations and should be considered only contains moisture, tending, harvesting and d0ensity of the wheat plant that could have the greatest effect in reducing the amount of total losses. Of course, it should also be considered that even if the provision, if the device has the appropriate settings cannot expect optimal performance from the device. Finally to choose the best settings head Stripper wheat chose that one designed and built with the lowest total mortality. For total loss of seed shattering losses and losses obtained clusters. Fig. 10 we can see that the horizontal distance fingertips to the tip 11 cm at a rotational speed of 700 rpm was the best performance as the best result reported that the amount of which was equal to 4.28%.

Adisa and partners the best performance for their stripper at a height of 270 mm above the ground stripping cylinder and a rotational speed of 670 rpm respectively [12]. Bruce and colleagues are also the best performance of the device at a rotational speed of 645 rpm and forward speed of 5.8 km per hour was achieved with consistent results [19]. Also Quick and Tado, the best settings for drum rotational speed of 850 rpm and best ground speed of six kilometers per hour achieved [25].

ISSN(Online): 2319-8753
ISSN (Print): 2347-6710

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Vol. 6, Issue 5, May 2017

IV. CONCLUSION

The best performance is when the device has the lowest total losses, because of loss of seed shattering and cluster can be obtained. In this study, the lowest total losses related to the rotational speed of 700 rpm and a horizontal distance of 11 cm fingertip to the nose of the amount equal to 4.28%.

V. ACKNOWLEDGMENT

Mr. Iman Hassan zadeh, Ali Ameri and Mostafa Farajpour to cooperate in this research is sincerely appreciated.

REFERENCES

[1] Statistical center, 2014.
[2] Statistical center, 2015.
[3] HA. Rahimi, A. Khosravani, "Determination Of Wheat At Harvest Waste And Its Associated Factors In Fars Iran", 2005.
[4] Strakšas A, "Development Of A Stripper-Header For Grain Harvesting", Agronomy research, Vol 4, no.1, pp. 79-89, 2006.
[5] WE. Klinner "Crop harvesting apparatus and methods", Google Patents, 1991.
[6] VA. Beisel "Flail-vacuum seed harvester", Google Patents, 1983.
[7] CJM. Tado, P. Wacker, H. Kutzbach, D. Suministrado, "Development of stripper harvesters: A review", Journal of agricultural engineering research. Vol.71, no.2, pp.103-112, 1998.
[8] D.Wilkins, JC. Douglas, JJ. Pikul, "Header loss for Shelbourne Reynolds stripper-header harvesting wheat", Applied engineering in agriculture (USA), 1996.
[9] WE. Klinner, "Crop harvesting apparatus and methods. Google Patents", 1990.
[10] Shelbourn, 2015.
[11] W Klinner, M Neale, R Arnold, A Geikie, R. Hobson, "A new concept in combine harvester headers", Journal of Agricultural Engineering Research, Vol.38, no.1, pp. 37-45, 1987.
[12] A Adisa, V Ndirika, Y Yiljep, U. Mhommed, "Field Performance Evaluation Of A Grain Stripper For Rice Harvesting In Nigeria", Transnational Journal of Science and Technology, 2012.
[13] YY. Jiang, "Crop Flow On Stripper Harvester Rotor - Analysis Of The Absorption Effect With Triangular Teeth", 2003.
[14] A. Goli, J. Khazaei, S. Kouravand, "Studying And Examining The Acceleration And Air Flow Pressure In Wheat Head Stripper", International Academic Institute For Science And Technology, Vol. 3, no.8, pp. 8-20, 2016.
[15] GR. Chegini, SV. Mirnezami, "Analysis and comparison of wheat losses in two harvesting methods", Agricultural Engineering International: CIGR Journal, Vol.14, no.3, pp. 91-98, 2012.
[16] SM. Nikravesh, K. Javad, M. Jafar, C. Gholamreza, M. Gholamhassan, "Design And Development a Head Stripper Combine For Wheat", University Of Tehran, 2009.
[17] B. Han, Y. Jiang, W. Wu, "Experiments on stripping header for harvesting lodging super rice", Transactions of the Chinese Society of Agricultural Engineering, Vol.27, no.6, pp. 90-94, 2011.
[18] A. Adisa, "Estimating Field Loss of a Developed Rice Stripper Harvester in Nigeria", International Journal of Science and Technology, Vol.2, no.4, 2013.
[19] D. Bruce, R. Hobson, R. White, J. Hobson, "PM—Power and Machinery: Stripping of Leaves and Flower Heads to improve the Harvesting of Fibre Hemp", Journal of agricultural engineering research, vol.78, no.1, pp. 43-50, 2001.
[20] G. Gale, "Automatic height control of a stripper harvester using a tactile sensor to detect the crop", Journal of agricultural engineering research, vol. 61, no.4, pp. 217-226, 1995.
[21] Kalsirisilp R. Comparative performance evaluation of a Thai-made combine with cutter bar and stripper header. Kasetsart Engineering Journal (Thailand), Vol. 14, no.42, pp. 51-67, 1999.
[22] RTC Peiris, "Development and evaluation of a rice stripping header system", 1990.
[23] J. Yuan, Y. Lan, "Development of an Improved Cereal Stripping Harvester", 2007.
[24] R. Kalsirisilp, G. Singh, "PM—Power and Machinery: Adoption of a Stripper Header for a Thai-made Rice Combine Harvester", Journal of agricultural engineering research, vol.80, no.2, pp. 163-72, 2001.
[25] CJM. Tado, GR. Quick, "Development of pedestrian-controlled stripper harvesters for southeast asian rice fields", The International conference on crop harvesting and processing, 2003.