

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

Contents

Why A Study On Chaff.....	1
Chaff Word Study.....	2
Chaff Subject Study.....	3
What Is Chaff.....	3
The Threshing Process In Brief: How They Get Chaff	4
My Misconceptions About Chaff	4
Summary of “Crop Residue” Article and Chaff Density Calculations.....	5
The Human Aspect Of Relating To Chaff.....	7
For Further Study:.....	7
Summary	7
Application:	8

Why A Study On Chaff?

First of all, chaff can be quite interesting as the threshing process was an important part of life in biblical times. Just “a failure to appreciate the effects of crop-processing can lead to major misinterpretations.”¹ for the archaeologist. Our lack of knowledge can lead to incorrect conclusions or under appreciation of the text. Yet, Chaff seems so nominal to many people that it is barely mentioned. They tend to leap into the metaphorical uses of chaff without first building a foundational understanding of the role chaff played in the lives of ancient people. Bible encyclopedias and commentaries leave us thinking we know what we need to know even though they have given but a cursory touch on the subject of chaff. A person must understand the metaphors if they want to understand the Bible. Understanding the agriculture behind agricultural metaphors is essential to interpreting them and fully appreciating them.

Chaff was an important part of life in the ancient world. Everyone knew what it was. They had seen it flying in the wind. They had played in it as children. A study on chaff can help us to understand the life of the ancient people better. It can help us understand why the metaphorical use of chaff was so effective. The better understanding of chaff in the life of the

¹ Nesbitt, M. (2001). Plants and People in Ancient Anatolia. *Biblical Archaeologist*: Volume 58 1-4, (electronic ed.), 71.

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

ancient world brings out the vividness of the metaphorical use of chaff they had into our world today to allow us to fully appreciate the metaphors.

Chaff Word Study

OT Words

NASB uses chaff 17 times while NET uses it 18 times.

Two of these occurrences are in the New Testament.

NASB renders 4 different Hebrew words as chaff.

- qash שָׁק is also translated as chaff (5), once straw, but most often stubble (10 of 16)
 - Stubble: Exodus 5:12; Job 41:28, 41:29; Isaiah 5:24, 33:11, 40:24, 47:14; Joel 2:5; Obadiah 18; Nahum 1:10
 - Chaff: Exodus 15:7; Job 13:25; Psalm 83:13; Isaiah 41:2; Malachi 4:1
 - Straw Jeremiah 13:24
- mots (8 of 8) מוֹץ is always translated as chaff.
 - Chaff: Job 21:18; Psalm 1:4, 35:5; Isaiah 17:13, 29:5, 41:15; Hosea 13:3; Zephaniah 2:2
- hashash (שִׁשְׁתִּי) (1)
 - Chaff: Isaiah 33:11
 - Grass: Isaiah 5:24
- ur (1) עוֹר
 - Chaff: daniel 2:35

The lexicological entry in [HALOT](#) for מוֹץ gives the Arabic word mauṣ with the Arabic word meaning of “straw.” It continues with “chaff” and a supporting reference.² TDOT says,

It occurs 8 times in the OT, always metaphorically in poetical texts. The LXX usually translates it with chnoús, although occasionally with ánthos and koniortós (dust).³

TDOT gives thirty-one words to discuss threshing, but nothing about chaff or what part of the plant it is before diving into the metaphorical use of chaff in the Old Testament. There is little else to do but a word search for the above Hebrew words and examine the verses where they appear. I encourage the reader to examine the verses to understand their meanings farther.

The lexicons do cover chaff as it is used in scripture as do bible encyclopedias.

Though I expected more from the encyclopedias about the stuff of chaff: What it is, its properties, how it acts in various conditions, how the people think of chaff and interact with it in their life activities.

² Koehler, L., Baumgartner, W., Richardson, M. E. J., & Stamm, J. J. (1994–2000). The Hebrew and Aramaic lexicon of the Old Testament (electronic ed., p. 619). Leiden: E.J. Brill.

³ Ringgren, H. (1997). מוֹץ, מוֹץ, מוֹץ, מוֹץ. G. J. Botterweck & H.-J. Fabry (Eds.), D. W. Stott (Trans.), Theological Dictionary of the Old Testament (Revised Edition, Vol. 8, p. 464). Grand Rapids, MI; Cambridge, U.K.: William B. Eerdmans Publishing Company.

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

Chaff Subject Study.

What Is Chaff:

If a person asks themselves, “What exactly is chaff.” They might find themselves reading specialized papers using large technical terms that are difficult to sort out to find the answer. This is further complicated when the miller considers chaff one part of the plant while the agriculturist considers it another part of the plant. Wikipedia offers a relatively simple modern explanation.

*In grasses (including cereals such as rice, barley, oats, and wheat), the ripe seed is surrounded by thin, dry, scaly bracts (called glumes, lemmas and paleas), forming a dry husk (or hull) around the grain. Once removed, it is often referred to as chaff.*⁴

Unfortunately, this is the wrong approach because the people of the Bible were not looking at their wheat and barley through microscopes as we do today. For them straw was the stalk of the plant. The chaff was any of the rest of the plant that blew further than the straw during the winnowing of the grain.

Chaff could include small bits of straw, or possibly lots of straw, but most likely was composed of the loose leaves and head parts of the plant other than the grain itself that blew the furthest in the wind when winnowed. With this understanding of chaff, it no longer a single small part of the plant we are examining. Instead it is all the various head parts and perhaps some loose leaves and sometimes possibly straw.

We have lost much of our ability to learn about ancient threshing and winnowing because archaeologists were not interested in threshing floors, sledges, or other tools of the threshing process since threshing was still done much the same way. More recently, farmers still using threshing practices similar to those of ancient times quickly modernized when threshing machines emerged on the farming scene in the 1950's. A majority of the people who remember threshing the old way have passed on. Their knowledge of threshing and stories are largely lost to us.

Ethnobotanist John C. Whittaker, whose primary research interests are in early technology, especially stone tools, talked with a sixty-six-year old flintknapper back in 1995. He is able to share what he learned about threshing sledges with flintstone threshing blades in the bottom that cut the straw into small segments.⁵ These cutting blades would explain why the Hebrew language has a word like *qash* (qash) that is translated as “chaff”, “stubble” and “straw.” For today's farmers, stubble is the part of the stalks that remain attached to the ground after the stalk is cut. The meaning of stubble meaning is appropriate for some instances of the word *qash* (qash): such as when the Israelites had to use it for straw to make bricks when Pharaoh refused to provide straw for them (Ex 5:12). Often the context of the text dictates if it is stubble, straw, chaff, both straw and chaff, or if we really do not know for sure. Sometimes the Bible leaves an

⁴ <https://en.wikipedia.org/wiki/Chaff>

⁵ Whittaker, J. C. (2000). Alonia and Dhoukanes: The Ethnoarchaeology of Threshing in Cyprus. Near Eastern Archaeology, 63(1–4), 65.

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

ambiguity when we do not need to know for sure or God wants to allow several possible understandings.

The Threshing Process In Brief: How They Get Chaff ⁶

Many people come together and help each other thresh and winnow their grain. This could include extended family, neighbors and hired labor as well as children doing what they can. The harvesting is an intense race in the hot sun to finish before the rains come. It is vital to their survival. The children work, play, or sleep nearby.

1. They wheat, barley or oats are harvested, cut with a cycle
2. It is bound into sheaves and carried to the threshing floor.
3. They placed the sheaves on the threshing floor.
4. Thresh the grain.
 - Threshing methods
 - Beat small bunches with a stick to knock the grain from the head of the stalk.
 - Drag a threshing sledge over it to rub the grain free of the head of the stalk.
 - Roll a wheel-thresher over it to press and rub the grain free of the head of the stalk.
5. They would toss the threshed material into the air when the wind picked up in the evening. The material would float in the wind according to weight. Material with the highest wind resistance to weight ratio would travel the farthest. Grain falls nearest, straw further away and chaff farthest away.
6. They sift the grain through 2 types of sieves, kēbārâ and nāpâ to separate it. They separate out the chaff before sifting since chaff would clog the sieves.
7. They place clean grain in jars, pits, or storage houses.
 - There were uses for straw and chaff.
 - Both straw and chaff can be feed to mature cattle as roughage but not as a complete diet.⁷
 - One could use chaff as fuel to heat water in ancient times.⁸

My Misconceptions About Chaff

1. FALSE: Surely it would take a lot of grain threshing to produce enough chaff to gather and burn.
 - The chaff piles are much larger than the grain piles.
 - barley 2-4 times the size
 - Wheat 8-10 times the size
2. FALSE: I would think it would burn hot and fast since it is so light and seemingly airy.
 - but a [youtube video](#)⁹ shows a large pile of it burning very slow and smoky.
 - Another [youtube video](#)¹⁰ on burning chaff dumps.

⁶ Much of this comes from Borowski, O. (1992). Agriculture. In D. N. Freedman (Ed.), The Anchor Yale Bible Dictionary (Vol. 1, p. 97). New York: Doubleday.

⁷ <https://www.gov.mb.ca/agriculture/livestock/beef/increasing-cow-calf-profitability-using-chaff-and-chaff-straw-feedstuffs.html>

⁸ Arndt, W., Danker, F. W., Bauer, W., & Gingrich, F. W. (2000). A Greek-English lexicon of the New Testament and other early Christian literature (3rd ed., p. 161). Chicago: University of Chicago Press

⁹ <https://www.youtube.com/watch?v=BBiFepG5H2s>

¹⁰ <https://www.youtube.com/watch?v=JLqgx-DCjls>

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

- a chaff dump can take 10 hours to burn.
 - They did burn chaff to warm water for a bath in ancient times.¹¹
 - However, chaff can burn very rapidly when is in the form of dust, but it is not in this state outside. Only in mills.
 - The agricultural industry (grain mills) must take care to avoid explosions. They limit how much dust is in the air.
 - Chaff burns faster when it can get enough oxygen to its surface areas the same way saw dust does when sprinkled into a fire.
3. FALSE: There is but a small amount of chaff that must be separated from the grain.
- As this study will show below, the chaff is about half the weight but many times the volume of the grain harvested.

Summary of “Crop Residue¹²” Article and Chaff Density Calculations.

This data is from crops grown with modern farming methods in rich soils. The chaff production is independent of soil richness although straw production increases with soil quality. This is true across wheat, barley, oats, canola, and peas.¹³

Parts of Crop Produced For A Bushel Of Grain.				
	grain (lbs.) 1 bushel	straw (lbs.)	chaff (lbs.)	bushels of chaff
Barley	48	35	5-10	2-4
Wheat	60	65	20-25	8-10

The volume of straw produced is 3-4 times that of chaff. The density of straw and barley is 29 kg/m³ and 47 kg/m³ for barley.¹⁴

¹¹ Arndt, W., Danker, F. W., Bauer, W., & Gingrich, F. W. (2000). A Greek-English lexicon of the New Testament and other early Christian literature (3rd ed., p. 161). Chicago: University of Chicago Press.

¹² <https://vulcancounty.civicweb.net/document/35510>

¹³ Crop Residue Collection for Field Grazing factsheet, Farm business Management, Saskatchewan Ministry of Agriculture.

<http://www.agriculture.gov.sk.ca/adx/adxGetMedia.aspx?DocID=12027,14486,14483,81,1,Documents&MediaID=12632&Filename=Crop+Residue+Collection+for+Field+Grazing.pdf>

¹⁴ Bouasker, M. (2014) Physical Characterization of Natural Straw Fibers as Aggregates for Construction Materials Applications: Materials 7, 3034-3048; doi:10.3390/ma7043034

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

Barley:

- For every bushel (48 lbs.) of grain, you get 35 lbs. of straw and 5-10 lbs. (2-4 bushels) of chaff.
- Chaff is 10-20% the weight of the harvest.

Wheat:

- For every bushel (60 lbs.) of grain, you get 65 lbs. of straw and 20-25 lbs. (8-10 bushels) of chaff.
- Chaff is 33-42% the weight of the harvest.
- The chaff piles are much larger than the grain piles.
- barley 2-4 times the size of the grain harvest
- Wheat 8-10 times the size of the grain harvest

Modern farming uses chaff as:

- a fertilizer - very slow release of minerals,
- soil conditioner to hold moisture content in the soil.
- Livestock food mix ingredient to add economical roughage

There are still several things that could affect the kernel size and the chaff ratios. The kernels may have been smaller than modern wheat if their soil was not as well prepared or cultivated as modern times. Modern kernels are likely larger because of engineering the plants. Either way, these calculations would be the minimum ratios for Chaff. 1:3 for Barley and 1:10 for Wheat. The piles of straw are as large as the pile of chaff piles. That is 2.5 to 5 times for barley and 2.9 to 3.6 for wheat. The economic value of chaff depends on how one would use it.

- [Calculating The Density Of Chaff For Data Presented Above.](#)

Bushel weights from:

TITLE 8: AGRICULTURE AND ANIMALS, CHAPTER I: DEPARTMENT OF AGRICULTURE, SUBCHAPTER p: WEIGHTS AND MEASURES, PART 600 WEIGHTS AND MEASURES ACT, SECTION 600.TABLE B STANDARD WEIGHT PER BUSHEL FOR AGRICULTURAL COMMODITIES

- “If the wagon is filled, the piles are approximately four to five feet high, seven feet wide and 10 to 12 feet long, and weigh about 800 lb.”¹⁵
 - 5' x 7' x 11' wagon load of chaff = 385 cubic feet (665280 cubic inches) of chaff weighs 800 pounds
 - American bushel = 2150.42 cubic inches¹⁶
 - 1 wagon load = 665280/2150.42 = 309 bushels.
 - 800 pounds /309 bushels= **2.59 pounds per bushel**

¹⁵ <http://www.agriculture.gov.sk.ca/adx/asp/adxGetMedia.aspx?DocID=12027,14486,14483,81,1,Documents&MediaID=12632&Filename=Crop+Residue+Collection+for+Field+Grazing.pdf>

¹⁶ <https://en.wikipedia.org/wiki/Bushel>

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

The Human Aspect Of Relating To Chaff

Harvest time was a lot of arduous work in the heat of the day. The magnitude of the task found neighbor helping neighbor. The whole clan would turn out to get the job done before the rains came and ruined the crops. Threshing was intense as was winnowing. However, the winnowing was usually done in the evenings once the breeze picked up. "A good breeze was crucial for the winnowing."¹⁷

We are limited in our knowledge of just how the people of Biblical times used chaff, but the volume of chaff produced makes it an important and dramatic part of the winnowing process. Sometimes it was used as fuel. Perhaps also as feed for the livestock. The chaff, illuminated by fire light, would create a cloud from the threshing floor to the chaff pile. The chaff pile would grow sizable unless hauled away to storage as the winnowing continued.

Whittaker also tells stories of children during threshing time. "School classes were dismissed early in the afternoon so the children could help with the harvest, and they would run to ride on the dhoukanes [threshing sledge] and "accidentally" tumble off into the soft chaff."¹⁸ One lady tells Whittaker, "I rode the voukani [threshing sledge] all day. Around and around and around went the voukani, and around and around went my head! I used to pray to God," she gestured dramatically, " 'Please let me off this voukani, don't make me do this all my life."¹⁹ "Children would ride donkeys loaded with chaff back and forth from ... the storage"²⁰ It is hard to imagine the children being able to resist putting themselves in the path of wind-blown chaff even if the straw pelts them a bit any more than today's children in the deserts resisting the temptation to run into whirlwind as dirt filled as it might be. Good or bad, these are the memories that make childhood an experience to remember. Bringing to mind image of threshing sparks these memories and ties the message to those earlier memories making it more relevant as well as making the message they heard much more vivid.

For Further Study:

1. If one knew the size of field people used as well as the likely crop yield compared to modern times, one could calculate the amount of chaff a person might have after the threshing and winnowing. I have found no evidence that the fields of Israel had set sizes for fields. However other cultures did. See wiki: Ancient Mesopotamian units of measurement but there seems to me some discrepancy.

Summary:

The biggest discovery of this study is that there is so much chaff by volume compared to the grain. The pile is up to 4 times the size for barley and up to 10 times the size pile for wheat. Is not by chance Jesus used wheat instead of the more common barley since wheat produces

¹⁷ Whittaker, 64.

¹⁸ Ibid., 69.

¹⁹ Ibid., 69.

²⁰ Ibid., 64.

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

much more straw and chaff than barley does. The piles of the straw are much larger than the pile of chaff. This give us a better idea of just how much material blew over to the piles.

It is the vast volume of chaff blowing in the wind during the winnowing process that makes for a particularly good metaphor for separating the worthless from the valuable. The small basket of grain compared to the nearby much larger pile of chaff all so illustrates Jesus saying, “the gate is wide ... to destruction ... “ [Mt 7:13-14](#) It is this vast volume of chaff that is missed by ministers when discussing the metaphor. The voluminous cloud of chaff illustrates the worthless many separated out while the relative few are valued and kept.

Though this information comes from areas near Israel, yet outside of it, it well known that technology spread from one area to another. It would likely be adopted if there was benefit in it such as making it easier for livestock to eat the straw and chaff, easier to store, or to winnow. We see evidence Israelite knowledge of this technology in Isaiah 41:15.

“Behold, I have made you a new, sharp threshing sledge with double edges; You will thresh the mountains and pulverize them, And will make the hills like chaff.

The presence of flintstone blades would indicate the straw was shorter pieces rather than long pieces.

Another interesting discovery is the human side. Though the work was long and hard the people would enjoy seeing those they did not see often. We also learned of children working and playing during the harvest processes. This reveals that memories are associated with chaff that personalizes its metaphoric use.

Without a study like this, we miss how dramatic winnowing can be by not realizing the sheer volume of material that is separated from the grain and how little grain there is in comparison. There can be up to combined fifty bushels of straw up to 10 bushels of chaff for each bushel of wheat grain harvested. We can now think of short stalk lengths when thinking of straw due to the flintstone blades attached to the bottom of the threshing sledge. We can also think of the fellowship the workers have as they thresh the grain as well as the memories children form during these events in their lives that makes separating chaff such a good metaphor for separating the valued righteous from the worthless wicked in a way that is not only relevant to them because of the intimate knowledge and interaction with chaff but it is also close to their hearts because of the childhood memories formed with their family and friends which allows vivid recall and association of these memories with the metaphors upon hearing them.

Application:

The application come in trying to get people to visualize the cloud of straw and chaff blowing in the wind by fire light with family and friends working nearby and relating this image to similar settings when memories in their own lives were formed. One can use personal experiences or scenes from popular moves, perhaps a barn raising scene²¹, a ball game, sledding down the neighborhood hill, a church camp, or a festive wedding. Draw parallels between their own memories and the memories the people of the Bible may have had relating to winnowing. Then

²¹ Seven Brides For Seven Brothers

Chaff: A Word and Subject Study

©2020 By: Daniel Gray

relate the many particles in the cloud separated away from the righteous who serve the Lord and from God Himself, being separated for ever from his presence. One could also involve threshing as the preparation for the winnowing process and separation of the chaff from the Wheat.