Wool Pouches

Wool Pouches are ERC-721 compliant tokens. Each one has an associated $WOOL balance that is earned over a time period.

A Wool Pouch is created with a few inputs:
- Duration (in days)
- Amount of $WOOL to be earned over that time period
- The wallet to send the Wool Pouch to

When a Wool Pouch is created, it should have an immediately available balance of 10,000 $WOOL. The remaining amount should be distributed over the duration linearly. As an example:

A Wool Pouch is created for 100,000 WOOL over 90 days.
At time = 0, 10,000 WOOL is available for claiming
At time = 45 days, 55,000 WOOL is available (10,000 + 45,000)
At time = 90 days, 100,000 WOOL is available

If the user claims on day 30, they will receive 40,000 WOOL. 15 days later, on day 45, they will have the ability to claim another 15,000 WOOL. And on the final day (90), they can claim the remaining 45,000 WOOL.

In addition, Wool Pouches have dynamic tokenURIs. They provide an SVG document that includes a GIF in the background and some text overlays. The two text overlays are:

1. The total remaining balance of the Wool Pouch
2. The amount that is currently available to claim

In the above example, on day 30, the total balance would be 100,000 and the amount available to claim would be 40,000. If the user claimed on day 30, the new tokenURI would show a 60,000 WOOL balance and 0 tokens available to claim. The available to claim amount should increase over time visually in the tokenURI.

Additional notes:
- Wool Pouches cannot have funds added to them
- Wool Pouches cannot be worth less than 10,000 WOOL to start

Risky Game

Risky game is a game that can be played one time per Sheep or Wolf. Sheep have a choice to make between No Risk and Yes Risk and Wolves have a single action to take.

Total Earnable WOOL Supply: 2.4 Billion (2,400,000,000)
Total WOOL Claimed in Barn v1: Roughly 230 Million (230,000,000)
Total WOOL Unclaimed in Barn v1: Roughly 786 Million (786,000,000)

The purpose of Risky Game is to:
1. Fairly distribute the 786 million WOOL that users earned in Barn v1 but weren't able to claim
2. Fairly distribute the remaining ~1.384 Billion of WOOL that was never earned in Barn v1

When the contract launches, Sheep will be able to choose between No Risk and Yes Risk.

No Risk

Sheep who choose No Risk should receive the amount they are due from Barn v1, minus a 20% tax that is given to the wolves.

The amount is calculated as follows:

Sheep that were staked before Barn v1 was paused	The amount they would have earned between the last time they claimed on their stake in the barn and the time of the migration (11/28 GMT+0) at a rate of 10,000 WOOL per day
Sheep that were not staked before Barn v1 was paused	The amount they would have earned between if they had staked at the time Barn v1 was paused and the time of the migration (11/28 GMT+0) at a rate of 10,000 WOOL per day

Example 1:
A Sheep was staked 1 day before Barn v1 was paused. The time between the pause and the migration was 8 days. This Sheep should earn 9 days of WOOL = 90,000 WOOL - 20% taxes = 72,000 WOOL.

18,000 WOOL should be added to the amount that Wolves can claim.

Example 2:
A Sheep was NOT staked at the time Barn v1 was paused. *The time between the pause and the migration was 8 days. This Sheep should earn 8 days of WOOL = 80,000 WOOL - 20% taxes = 64,000 WOOL.*

16,000 WOOL should be added to the amount that Wolves can claim.

The WOOL received will be received in the form of a WOOL Pouch. The Sheep can choose whether they want a single WOOL Pouch for all of their WOOL in that transaction (saving gas by only minting one ERC721) or separate WOOL Pouch for each Sheep's earnings.

Notes:

- The No Risk option has no time limit
- Any player who does not opt into the Yes Risk option before it closes will be forced to take the No Risk option

Yes Risk

The Yes Risk option gives Sheep a 50/50 chance to receive money from a larger pot. The pot is defined by the 1.384 Billion outstanding WOOL *plus* any WOOL these Sheep would have earned in Barn v1. A sheep's possible earnings will be their share of the Yes Risk pot defined by the total pot / number of Sheep in the Yes Risk option.

The randomness for the game comes from a commit / reveal scheme. When the contract launches, Sheep will have roughly 2 days to opt in. This period ends when the contract owner generates a random seed via chainlink. That random seed will be used as the source of randomness for the 50/50 chance for all sheep afterwards.

When they opt in, **the amount they would have received in the No Risk option should be added to the Yes Risk pot total.**

When a Sheep opts into the Yes Risk option, they cannot change their choice and must wait until the randomness is generated to execute the results of the game. After the randomness has been generated, the game will know the total pot amount and the total number of sheep opted in.

Each Sheeps potential earnings are total pot / number of sheep opted in. Example:

The pot begins at 1.384 billion. 1000 Sheep opt in and they were all due 80,000 WOOL from the No Risk option. A total of 80,000 x 1000 (80 million) WOOL is added to the pot, making it 1.464 billion WOOL available to win.

Each Sheep will play the game for a chance at winning 1.464 billion / 1000 WOOL = 1,464,000 WOOL (1.464 million). Each sheep has a 50% chance of winning that amount.

Each sheep can execute their results and receive their WOOL. The WOOL received will be received in the form of a WOOL Pouch. The Sheep can choose whether they want a single WOOL Pouch for all of their WOOL in that transaction (saving gas by only minting one ERC721) or separate WOOL Pouch for each Sheep's earnings.

Notes:
- Any Sheep (or group of Sheep) that doesn't win does not receive a WOOL Pouch
- Once the randomness has been generated, any Sheep that has not chosen No / Yes Risk is forced to play No Risk

Wolves

Wolves can receive their WOOL after the randomness has been generated. The total amount earned by all Wolves is equal to the total taxed amount from the No Risk option *plus* any WOOL lost in the Yes Risk option. This pot is divided amongst the wolves based on their alpha score.

Example:
There are 10,000 Sheep total. The pot begins at 1.384 billion. 1000 Sheep opt in and they were all due 80,000 WOOL from the No Risk option. A total of 80,000 x 1000 (80 million) WOOL is added to the pot, making it 1.464 billion WOOL available to win.

This means we can assume that 2.4 Billion - 230 million (already claimed from Barn v1) - 1.464 billion in Yes Risk = 706 million will be distributed in total for the No Risk option. 706 million x 20% = 141.2 million WOOL will be taxed.

The Wolf pot is then equal to 50% of 1.464 billion (to account for 50/50 chance of win/loss) + 141.2 million = 873.2 million WOOL. There is 9897 total alpha across all wolves. So a Wolf with an Alpha Score of 6 would receive 873.2 million x 6 / 9897 = 529,000 WOOL.

Notes:

- Wolves can't claim until after randomness is created and we know the number of sheep opted in
- Wolves will earn a flat 50% of the Yes Risk option. However in reality, Sheep will not receive exactly 50% since not exactly 50% will win. This will lead to a slight discrepancy in the total supply of WOOL in regards to being equal to 2.4 billion