The farmers of any country form the backbone of the food bowl of the nation. They toil hard on their crops, day after day, season after season, and in the end, help produce food for an entire nation, and beyond.

So, what are a farmer's expectation while toiling on the crops?

Well, just like you and me, they would want to get maximum out of their efforts.

Firstly, that out of the innumerable seeds that are planted, most should germinate. Example, if a farmer sows 1000 seeds, he / she will hope that most of them actually germinate. This is represented by germination rate.

Secondly, a faster germination rate of the seed or that the time taken for the seeds to germinate is minimum. This is represented by velocity of germination.

Thirdly, higher yield from the crop that basically translates into the better development of the seedling reflecting in the length of the root length.

If all the above 3 parameters are yielding good results, i.e. maximum number of seeds sown germinate, time taken for germination is lesser and the final yield of the crop is high – then we can safely assume that it becomes an economically productive exercise for the farmer.

Do farmers have ecologically sustainable answers for the above 3 crop parameters?

The farmer community, in their bid to achieve the maximum germination rate, germination velocity and higher yield, use various chemicals on the soil in terms of fertilizers. Sometimes the extensive use of these chemicals in agricultural production can degrade and damage the community of micro-flora living in the soil, particularly when these chemicals are overused or misused. Also, it starts an iterative cycle where farmers have no choice but to buy more and more chemical fertilizer as the dependency increases, coming to a time when nothing grows

without these chemicals. The soil loses its natural potency and the subsoil water too is contaminated.

And this is where the process of Yagya comes in

Yagya is referred variously as *agnihotra*, homa, homam, *havan*, etc. Whatever be the referral name, the process is always the same. This constitutes oblations in the fire-altar appended by specific mantras of consecration. Mantras by themselves make up advanced science of sound energy, and there are lakhs of mantras delving in all aspects of the existing cosmology.

Here the process factors in sound energy with the light and heat energy generated during the performance of yagya. Post the completion, the ashes are collected and stored for a number of applications.

The Vedic system considers Yagya as the key to attain and maintain sustainable ecological development. *Vasudhaiv Kutumbakam* is the common denominator amongst all Vedic and Veda-inspired belief system. This corresponds to the entire Earth community as one family – a family that includes all the inhabitants of the planet, *including plants and animals. So, taking this hypothesis, an experiment was conducted to measure the impact yagya on crop seeds, if any.*

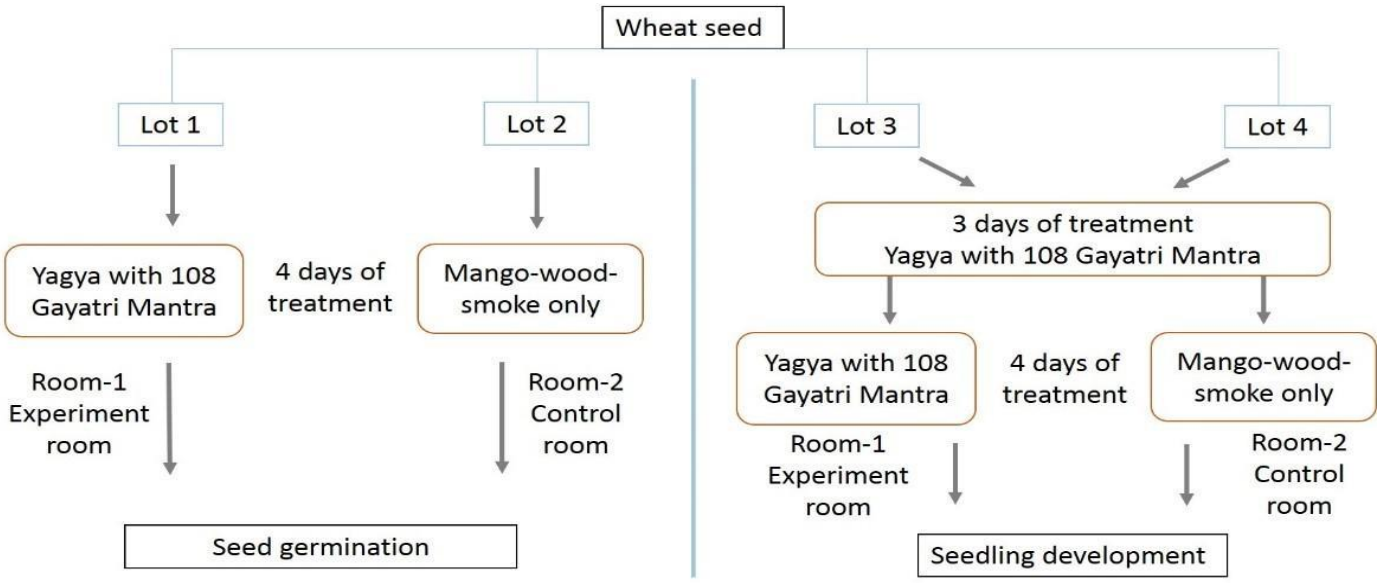
Snapshot of the experiment

The experiment was to test the effect of traditional Vedic Yagya on germination, if any, and the consequent development. Wheat seeds and seedlings were experimented on in this process.

Two sets of studies on the seeds were conducted simultaneously.

In 1st study, one set of wheat seeds were exposed to the Yagya procedure and another set of wheat seeds were exposed to normal conditions of growth and smoke from regular mango (mangifera indica) wood smoke in an adjacent chamber. The seeds were thus treated for 4 days and on 6th day, the data regarding seed germination was recorded.

In the 2nd study, seeds were first germinated in the presence of Yagya procedure and then exposed further in the presence and absence of Yagya to observe the effect on seedling development.



Normal yagya process was conducted with *yagya samagri* (herbs), *yagya samidha* (wood) and oblations using Gayatri Mantra

What were the findings

In this experiment, *yagya*'s positive effect on seed germination and seedling development of wheat seed were observed. It was observed that in presence of *Yagya* fumes the germination rate index was 85.9% while in control it was just 48.15%.

In the same way approximately, same difference was observed in coefficient of velocity of germination stood at 77.021% in presence of Yagya fumes while 36.076% in control.

It was also observed that Yagya treatment can reduce the mean germination time from 2.77 days to 1.9 days which is approximately half of the time taken by control. Along with this, the average length of the root was also observed to be more in the experiment done with yagya.

Here too, based on the study and other researchers' observations, it can be said that **Yagya treatment of seeds can be developed as a practice to maximize germination, reduce growth time and increase the yield of wheat.** The process of Yagya demonstrates a tremendous potential to act as fertilizer as well as to improve the health and quality of the soil by potentially reducing pollutants in the soil and maintaining its pH and concentration of micronutrient present in that, and thus, promoting the development of sustainable agriculture - as indicated in the Vedic scriptures.

To read the full paper along with details, graphs, data and references, please click here

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