

INFLUENCE OF LUNAR AND SIDEREAL EFFECTS ON AGRO-INDUSTRIAL PROCESSES: AN HEALTH CHECK OF THE RESEARCH ACTIVITIES

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The question of the influence of moon phases upon living organism, and especially upon vegetation, has always been of interest to man. In many countries where a “*still-living*” traditional knowledge is present, it is possible to identify agronomical and forestry practices that incorporate these phases in the different operation.

In the traditional knowledge framework related to agriculture there was always being a common background which stated the influence of lunar and sidereal effects on all farming activities. Since the first experiment to test traditional lore on the subject, which may first have been made by Francis Bacon (Bacon, 1627) to the 20th century ones (Kolisko, 1936; Mather, 1942; Beeson, 1946) the results have always been equivocal.

Despite some strong evidences on the influence of lunar phase on certain biological activities as germination rate (Maw, 1967), water absorption (Brown & Chow, 1973) and metabolism (Brown, 1960) no definitive results neither clear evidence seems to be found until now on the influences on crop yield or animal production. (Kollerstrom, 1980)

In the 1990s, discussions in print of the biodynamic calendar in Europe, America and New Zealand, have alluded to the experiments conducted by Spiess as having tested the “Thun hypothesis” and failed to replicate it (Llewellyn, 1993).

It appears, however, that although the experiments were well designed, this was not matched by a corresponding care in the data analysis. There were two other radish trials, which Spiess performed in 1979 and 1980, over 30-day periods, where in the first case yields increased by a factor of seven from start to finish of the experiment, and in the second case they more than doubled. But, in experiments conducted over only one month, containing such large seasonal trends within the data, it is unrealistic to expect low-amplitude sidereal rhythms to be detectable.

Not taking into account these and a few other examples, today the traditional heritage of peasant lore plays only a minor role in the practice of the “modern” farmer and gardener; only in biodynamic agriculture and horticulture are lunar and sidereal rhythms still considered.

Results published to date suggest that the ‘Thun-effect’ is a testable and verifiable hypothesis. The current analyses endorse Spiess’s general conclusion that ‘lunar factors’ may have a practical significance for agriculture.

Lunar Rhythms Influence Findings

Today evidences show that hundreds of organisms reveal a link to lunar rhythms either in their reproductive cycles or in their feeding habits (Schad, 1999). All scientifically proven cases show a dependency upon the rhythms of the synodic moon or the cycles of the tides, which are governed by the moon. The following plants, for example, respond in their metabolism to the lunar synodical rhythm and are mentioned in the literature: germination and water uptake in beans; root growth in beans and sunflowers; respiration in potatoes, carrots, and sunflowers; growth rate in cress and various wild plants; absorption of nutrients in Sudan grass and corn; DNA formation in potatoes and formation of cytokinin in seaweeds (Endres and Schad, 1997).

Recent findings show an effect of lunar rhythms on the germination and rate of growth of tropical trees. The percentage of germination and successive rate of growth were highest when seeding took place two days before full moon. Furthermore, the magazine *Nature* published observations which showed that tree trunks expand and contract in conjunction with the cycles of the tides (Zuercher et al, 1998).

Future perspectives and needs

The literature on the moon and plants can be assigned to two groups: one comprising reiterations of peasant beliefs, myths and rules, both ancient and modern, and similar unsubstantiated statements; the other comprising experiments supported by numerical data capable of statistical analysis. This second group consists of (i) experiments mainly of the anthroposophical school, which demonstrate the existence of lunar effects on the growth of plants;

and (ii) experiments of professional horticulturists and foresters, which tend to prove that there are no such effects, or that, if they do exist, they have no value in agricultural practice.

The agro-industrial production system is now facing new challenges: reduced impact on environment, agro-energy production, kelp farm, aquaculture. In all this new area, the necessity to investigate the relation between earth, moon and sidereal effects and organism is an open question to researchers.

The hypothesis that “endogen-exogen” rhythms linked to lunar and sidereal effects influences plants and animals in term of higher germination rates/more vigorous growth or more efficient use of means of production (soil, fertilizer, water) must be investigated though well-designed and well-discussed experiments.

A comprehensive and holistic approach to this subject is required by all the researchers in this study area, a special effort needs to be done to define a real “state of art” of all the experiments carried out till nowadays.

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