

# Does directed behavior of plants?

## On the influence of eurythmic gestures on the growth and formative gestures of lettuce

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Plant varieties are usually characterized by characteristic morphological features in their growth. Is it possible to specifically change the growth gestures and shape of the plant through targeted human behavior? In anthroposophical terminology, this would take place on the level of the life force body, the etheric level. In order to investigate this question based on initial evidence from biodynamic breeders, numerous experiments have been carried out over the last eight years: seeds soaked in water in particular were subjected to such treatment. Influences were synchronization with planetary constellations, individual tones and intervals, eurythmic gestures and later, based on this, certain meditations by the experimenter.

Questions were:

- Can the growth and formative forces of plants be changed at all?

- Can the basic gestures of a species or variety be strengthened through treatments?
- Can the influences from the cosmos, which according to Rudolf Steiner help shape the plant, be conveyed specifically to the plant via eu-rhythmic gestures?
- How can effects be determined?

While the original motivation was more pragmatic to strengthen plants, it developed into basic research with the questions mentioned above. The following presentation is limited to the influence of eurythmic consonant gestures. The treatments were carried out in 2007. This was followed by an untreated (neutral) replica. The results from 2010, the third neutral replica, are presented.

### Methods

Seeds and seed treatment: Lettuce of the "Cindy" variety was chosen as the starting seed. The variety had previously been reproduced six times in the company in a neutral manner, that is, without any treatment. The seeds for the experiments come from a single plant (2005). Since lettuce is self-pollinating, the starting plants are as uniform as possible. For the eurythmy treatment (2007) the seeds were used

### Eurythmy

Eurythmy is an expressive movement art that is used both on stage and in therapy or in social processes. It goes back to Rudolf Steiner's suggestions. It is intended to represent intellectual content through body movements and gestures (meaning, sound, sentence, tone and motifs) and refers primarily to texts or music.

soaked in water for two hours. A portion of seeds was placed in each bowl. This stood on a table - the respective eurythmic consonant gesture was performed in front of it for about 5 minutes. (The seeds still to be treated were not in the same room.) After the treatment, the moist seeds were sown immediately. (Even after re-drying and storage, the effect of the treatment appears to remain). The treatments for the different variants all took place one after the other on the same day. The experimenter treated the eurythmy sounds B, C, D, F, G, L, M, N, R, S, T and W individually.

**Cultivation:** All cultivation measures were generally carried out on the same day for all variants (sowing, pricking out, planting, harvesting). It was of every variant

Table: Head size, weight and density in relation to

characteristic	variants	Quality of consonants
Size (< 12 cm)	T, W, M, S, L, (F)	
weight (heavy)	T, W, M, B, G, N	
Internal head density (tight)	T, N, B, G	Thrust sounds
Inner head size (11 cm)	T, N, B, G	Thrust sounds
Inner head size <12 cm	L, M, S, W blowing sounds	
Inner head density (loose)	L, M, (W), R	Bladder sounds

Seeds were harvested and neutrally recreated in the following years. The sowing took place on March 5th and planting took place on April 16th; Harvest and assessment took place on June 17th. instead of.

**Ratings:** Four people described external features to characterize the figure (three of whom had no experience with eurythmy) such as head size, size of the binder, leaf position, overall impression of the heads and the overall plot. The last characteristic represents a mixture of physical characteristics such as wavy, ordered, chaotic, upright and mental experience. The characterization of the external appearance took place in the field and after the harvest, after the heads were laid out next to each other, once in an intact condition and then in a longitudinal section.

### Data collection

- **Weight:** When harvesting it was Make sure to cut all the leaves that are still intact. Based on the experience of previous years, where the differences between the individual plants (weights) were greater than the clear differences between variants, the four largest heads were harvested and weighed.
- **Overall size:** It was the Head size measured with binder; This is not possible exactly, but it confirms the external impression of large - medium - small.
- **Size of the inner head:** The inner head stops where the layering becomes looser and the color goes from yellow to green. In variants where the transition is smooth, the measurement also becomes "flowing", but this also confirms this first external impression.



- **Height:** A piece of cardboard was placed on the head and pressed lightly and then the height was measured. In the year of treatment (2007) sen.
- **Head strength** was determined by pressing on the head. In the case of a closed head, head firmness is both a characteristic of the variety or, in this case, the influence of treatment, but also a sign of maturity. The head strength was therefore additionally described on the cut head in the various zones: inside – middle – outside.

Investigations into formative forces were carried out using the method of D.

Schmidt (2010) carried out in pairs - once. A mixed sample of the inner leaves of 3 plants was examined via tasting and hand sampling. The descriptions of the two examiners agreed well and were added together. In order to better classify the results of the treatments, various types of lettuce (Ar-deola, Neckarriesen, blistered red lettuce) and various lines of the Cindy variety were also examined.

### Results and discussion

In the year of treatment (2007) there were no externally visible differences between the variants. This corresponds to previous experiences and those of colleagues. Only in the following (neutral, ie without further treatment)

After the years, the influences of the eurythmy treatment could be perceived on different levels, in the external impression, in size, weight, as well as in the layout or the internal structure and the visual power gestures.

### Dimensions, weight and Characterization of the external impression

**Size:** After describing the external view and measuring the heads, the following variants formed a large head: T, F, W, S, M, L. In the characterizations of the shape it becomes clear that these variants appear large in different ways: T: massive , F: expansive, W: lush, vital, S: chaotic

Two salads of the same variety from the same set - but with seeds treated differently: is there an influence of human behavior?

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table, wild, M: groping, L: watery, moving. Statistically, B and D (small and compact) are significantly different from M, T, S, R, W, G and L in overall diameter (see Fig. 1).

**Weight:** It is hardly surprising that the variants whose shape was characterized as “solid”, “protruding with a certain density” and “lush” are actually heavier (T: 590g, M: 570g, see Fig. 2). The treatment with N (also in 2008), as well as with G and B, formed an even denser and heavier lettuce. Why the N treatment forms such outstandingly dense and heavy heads emerged from the experience of N in the perception of formative forces.

Studies of the inner head density show why the head weights of N, G and B are still high despite relatively smaller head diameters.

**Inner head size and head density:** All treatments with high head weights (except M) had small, well-spaced inner heads (diameter: 11 to 11.3 cm) and were morphologically characterized as “contracted” (N); “concentrated” (N, G, T); “twisted together, held” (T); “round, with yourself” (B); “condensed” (G). On the other hand, the large but relatively light heads also have large inner heads (M: 14 cm; L: 15 cm, W: 12.3 cm; S: 13 cm) and a low head density. They were described as “watery”, “moving”, “rising” (L, W), “weaving, outwards”, “feeling out” (M, W), “chaotic surroundings” (S). Statistically, the inner head size L and M (large with a smooth transition from inner head to binder) were significantly different from T, N, D and B (small, well-spaced inner heads) (see Fig. 3). The variants C, W and B were characterized as beautiful in 2008 and 2010. In the

Inner head density/strength differ significantly from N, D, G, T, B (bump sounds), which form very dense, solid heads (Fig. 4).

### *Differences in the internal structure / description of the internal head:*

The view of the cut clearly showed what one had already guessed from the external impression, when weighing and measuring: the heads described as dense (N, B, G, T) - all shock sounds - also showed a dense layering and a high proportion on white-yellow bleached leaves. The big, but relative light heads (L, M, W, S) blowing sounds! – had a loose layering, a lot of air between the leaves at the base of the stem, a very small proportion of bleached leaves. The highly rounded heads (T, F) showed an elongated head shape when cut and were also significantly higher in the measurements (Fig. 5). It is not surprising that the shock sound T stimulated heavier and denser heads (“twisted together, held”) than the blowing sound F (“spraying out”).

## Perceivers Educational force studies

From the study of numerous Salad varieties based on Dorian's The method described by Schmidt was familiar with the formative gestures typical of salads:

- fine, slightly stimulating light, trickling through the entire body;
- a certain attentiveness Alertness;
- a weaving in the chest area that also extends into the outer space;
- slightly watery-bubbly-stimulating coming spring-like revival;
- a shell that is attentive to the outside world;

## Description of the salads of selected variants

	physical appearance: summary of Measurement results	Characterization of the shape*	summary of description of Formative powers
<b>Neutral image (Control without Treatment)</b>	A fine, tender lettuce of light green color, medium size, rather small, medium to medium-sized leaf lettuce good strength and inner sheet layering. Little air on the stem can <small>sentence.</small>	Fine, delicate, vital.	Delicate, fine light and weaving; slightly spring-like, tingling, watery, invigorating, medium alertness Overall: not very strong, features rather weak.
<b>Gesture B</b>	Round, even, compact head, “harmonious”, beautiful, of medium weight and size – heavy in proportion to its size. ripe early,	gentle, round, lovely, delicately designed; “round, pretty, no expansion”	little light, slow weaving, sheath more protective than perceptive, Alertness internally, not very strong Overall: “calmed salad”
<b>Gesture L</b>	Head relative large with relatively low weight late ripening, early rotting; slightly fluffy; Large inner head with a flowing transition to the binder, not very dense with a lot of air	– “rise up” flowing, dense, watery, full, revitalizing vital “wavy leaves”	light medium fine; Weaving medium densely full; Alertness medium Overall: full, dense, watery
<b>Gesture C</b>	medium heavy head of medium size, even, fine, opening slightly upwards, delicate, beautiful! Inner leaf layering firm (looks airy), stalk narrow, petioles thin	fine, delicate, airy	Light, fine and fiery, attentive, invigorating Overall: delicately floral, tinglingly invigorating – lovely salad!

\* Summary of exterior view descriptions; English text: Impression of the interns 2008

- as well as the strength of the expression.

The results of the investigations on four different treatment variants are described below as examples in conjunction with the external impression and the measurements.

### Discussion about possible Efficacies

The results show: there is a sensually visible and physically measurable influence of the eurythmic treatment of lettuce seeds (single five minutes in the seed bath) on the properties of head formation.

This influence is less evident in the year of treatment, but rather in the following years of neutral (ie no longer treated) reproduction. In addition to the question of how such an effect can be explained in the classic scientific model, such an effect shifted to the offspring generation does not correspond to the common ideas about heredity: as is well known, this is based on the introgression of certain characteristics that determine the hereditary substance change, and only a selection for these characteristics in the offspring would change the original variety(s). In this way, the genetic material was not influenced.

So how should we think about the "inheritance" of an influence that is not directly, i.e. ethereally, brought to the plant from outside? Who or what actually works there? Molecular geneticists and humanities researchers can continue their research there regarding "what" and "how" Insofar as a "who" is also involved, that is, spiritual beings become active, this raises the question for me as a breeder:

Am I working with these entities in this type of influence? I therefore assume that what is required is not will or ideas, but rather an inner attitude of communicating openly with humility and devotion.

A pragmatic, linear approach, e.g. B. aiming for better head filling with targeted N-gesture treatment, i.e. treating "fluffy" heads with "N", contradicts such an attitude.

The experience with treatments for "fluffy heads" with tone A - the heads treated in this way are small and compact - and the consonant B - round and compact heads - showed that the tone was no longer openly researching, but rather pragmatically goal-oriented Treatment has no effect, neither in reconstruction nor after multiple intensified treatment.

Now, according to the findings of this year, the "N" is certainly the better therapy for filling the head compared to the B: The eurythmic N gesture is a filling, taking in from outside, the B gesture is a limitation or

Shell from the outside, thus forming the interior. Nevertheless, after such unsuccessful attempts at compression, which I obviously wanted too much, my assumption is that an influence of this kind cannot happen without the request for the consent and help of the beings involved. In this sense, further experiments should be carried out.

### The essence of the salad

In plant cultivation and biodynamic "dogmatics", lettuce is viewed as a leafy plant: the stem remains compressed, the leaves form a closed head in the rosette and thus become a food crop - with

Formation of aroma, one

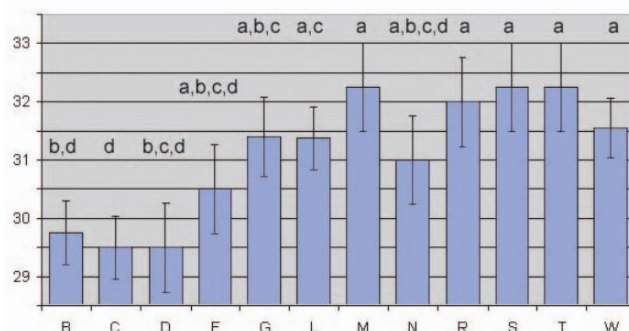


Fig. 1: Total diameter of the lettuce heads. Variants with unequal letters differ significantly from each other ( $p=0.05$ ). Capital letters on the x-axis: eurythmic treatments. Statistics: one-factor analysis of variance.

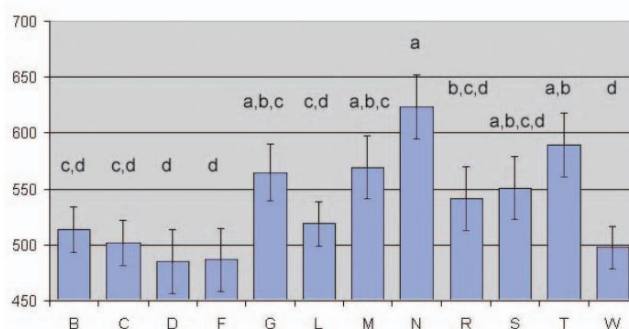


Fig. 2: Weight of the lettuce heads. Variants with unequal letters differ significantly from each other ( $p=0.05$ ).

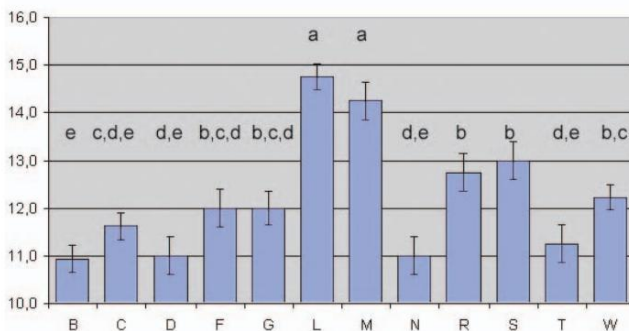


Fig. 3: Inner head diameter of the lettuce heads. Variants with unequal letters differ significantly from each other ( $p=0.05$ ).

slight bitterness and sweetness and a certain shelf life. When looking for gestures typical of salads that could support these properties and strengthen the salad overall, the focus was more on the watery, invigorating leaf character of the salad: I mainly used the gesture L for seed treatment, too Experiments were carried out with the gestures W and M

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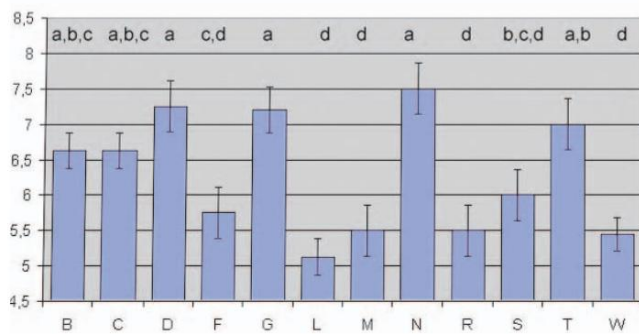


Fig. 4: Firmness of the lettuce heads. Variants with unequal letters differ significantly from each other ( $p=0.05$ ).

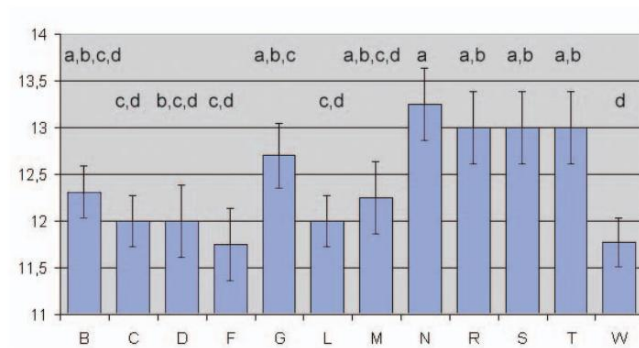


Fig. 5: Height of the lettuce heads. Variants with unequal letters differ significantly from each other ( $p=0.05$ ).

carried out. In the investigations of the third replica, the expectation was that treatment with one of these consonant gestures would be particularly typical of salads, strengthening and supporting it. In a certain way this is the case: the heads treated with L, M, and W show at least a gesture typical of salad, while the sounds T, G, B and S change the salad in a way that contradicts its essence. With the C or CH gesture, however, it was immediately clear:

This is the most suitable for the salad: In the most beautiful form, all typical salad gestures have been reinforced, the gestures enriched, expanded.

How does the C gesture fit with the leafy salad? I had noticed over the last few years that the salads treated with the C gesture always looked particularly beautiful and appealing - I never really understood that - so I didn't pay much attention to it. In the circle of breeding researchers, we had engaged in word meditations on the nature of various cultivated plants: in this case, one of those present said the word "lettuce" out loud once or twice. When I experienced the gesture of the C on the lettuce, I remembered the result of the word meditation: "Lettuce should not be treated as a leafy plant, but as a flower."

The bowl-shaped opening above the head, which can be seen in the perception of the visual forces and is filled with fine light, can be experienced as a flower gesture; the invigorating wateriness is not dull, dreamy, but bright and joyful. (see Henatsch, 2010) The C in eurythmy is described by Steiner as follows (after Barfod)

- grab the substance and guide it through transsubstantiation;
- something becomes easy, easier, being easy;
- matter is lifted by the spiritual;
- fill yourself with spirituality.

In the leaf area, the plant generally positions itself horizontally, into its surroundings - in the flower it opens up to the cosmos, the leaves transform, exude scent and color, become "light - light".

This confirmed the result of the word meditation for me based on the investigations, or showed it again from a different side. We can see why lettuce in autumn can only remain healthy in summer weather: lettuce conveys spring-like vivacity, openness, lightness, flower-like opening; Autumn calls for contemplation, drawing together, coming to oneself. The salad can't support that.

To "make it suitable for autumn" would be to deny its essence. So are e.g. B. the resistant lettuces that are suitable for autumn are firm, dense, tough and bitter. There are types of lettuce that carry the spirit of autumn and can support people in it as food: sugar loaf and radicchio. Even in their external gestures they are more concentrated, denser: the sugar loaf is very upright, the leaf is firmer, but suits the dense, slightly bitter character of these autumn and winter salads. In their gestures they convey inner uprightness and security, a "coming to oneself"; They are not spring-like, invigorating, refreshing, but rather centering and slightly warming. Work is underway to develop seed-resistant varieties of these varieties.

#### Sources:

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