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Enhancing Sweet Corn (*Zea mays* L. saccharata) Growth and Yield *via* Spiritual Blessing (Biofield) Energy Application

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Abstract

Modern agricultural systems face increasing demands for sustainable, eco-friendly strategies to boost crop productivity without excessive use of chemical fertilizers and pesticides. Non-invasive biophysical interventions, such as Spiritual Blessing (Biofield) Energy Treatment (SBET), have emerged as promising complementary approaches to enhance plant physiology, metabolic efficiency, and yield performance. This study evaluated the impact of SBET (Trivedi Effect®) on the germination, vegetative growth, phenotypic characteristics, and total crop yield of sweet corn (*Zea mays* L. saccharata) under standardised field conditions. A randomized complete block design was conducted dividing healthy sweet corn seeds and cultivation plots into two groups: a control group and a biofield energy treatment group. Various vegetative morphological traits such as leaf width, flag leaf length, flag leaf width, anthesis silk interval, and tassel branching were significantly increased by 42.77% ($p \le 0.001$), 38.53% ($p \le 0.001$), 48.14% ($p \le 0.001$), 32.96% ($p \le 0.001$), and 29.63% ($p = 0.022$), respectively, in the BTSCORG than CONSCORG. Fruit pedicel length, ear/cob length, and ear/cob diameter were significantly increased by 38.29% ($p \le 0.001$), 43.23% ($p \le 0.001$), and 60.87% ($p \le 0.001$), respectively, in the BTSCORG with respect to CONSCORG. Moreover, the number of kernels per row and the number of kernel rows per ear were significantly improved by 59.81% ($p \le 0.001$) and 64.82% ($p \le 0.001$), respectively, in the BTSCORG compared with CONSCORG. Finally, the grain and straw/stover yield/hectare (ton/h) were improved by 81.70% and 35.06%, respectively, in the BTSCORG compared to the CONSCORG. The findings suggest that SBET served as an effective, non-chemical biophysical intervention capable of accelerating vegetative vigor and significantly improving yield parameters in sweet corn.

Keywords: *Zea mays,* spiritual blessing, sweet corn, biofield energy treatment, crop morphology, yield

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INTRODUCTION

Sweet corn (*Zea mays* L. saccharata) represents an economically significant cereal and vegetable crop, prized globally for its high sugar content, nutritional profile, and agricultural value [1]. Achieving optimal growth performance, seedling vigor, and cob yield in sweet corn requires coordinated physiological and metabolic activities across all developmental stages [2]. However, sweet corn cultivation faces critical constraints during early seed germination and reproductive maturation, where environmental stress and nutrient limitations frequently impede yield potential [1,2]. Consequently, identifying novel biostimulatory interventions capable of enhancing vegetative growth, photosynthetic efficiency, and biomass accumulation specifically in sweet corn remains a primary objective in agricultural research. In recent years, physiological optimization strategies for sweet corn (*Zea mays* L. saccharata) have focused on non-chemical biostimulants, beneficial micro-organisms, and natural metabolic enhancers to drive crop performance [3, 4]. Exogenous applications on sweet corn have demonstrated significant improvements in relative water content, antioxidant enzyme activity, and nutrient assimilation [3]. Furthermore, biological growth-promoting treatment in sweet corn have been shown to maintain stomatal conductance, mitigate physiological stress, and maximize overall crop productivity under variable growing conditions [4]. These findings demonstrate that modulating biophysical and biochemical pathways in sweet corn (*Zea mays* L. saccharata) directly translates into enhanced vegetative vigor and marketable yield.

Parallel to biochemical biostimulants, non-contact biophysical interventions such as biofield energy treatment (The Trivedi Effect®) have emerged as novel approaches capable of modulating cellular [5], microbial [6], seed germination efficiency [7], soil microbial vitality [8], and plant growth dynamics [9]. While biofield energy treatments have demonstrated promising effects in crop systems, their specific efficacy, physiological mechanisms, and yield-enhancing impacts on sweet corn (*Zea mays* L. saccharata) remain underexplored.
Therefore, this investigation was designed to evaluate the impact of Spiritual Blessing (Biofield) Energy Treatment (SBET) on the growth performance, morphological traits, and ultimate yield attributes of sweet corn (*Zea mays* L. saccharata). By examining key agronomic parameters in sweet corn under biofield energy exposure relative to the untreated control, this study aims to establish a paradigm for enhancing sweet corn productivity.

Materials and Methods

Study site

Set in the tropical Konkan agro-climatic zone, this study was carried out in Bhandarwadi, Sindhudurg, Maharashtra, India (15°37'–16°40' N, 73°19'–74°13' E; 26 m above mean sea level). High pre-monsoon temperatures (38 – 40°C) and a hyper-thermic regime define the regional climate. Fluctuating yearly precipitation causes substantial seasonal soil moisture deficits, elevating crop drought stress and potentially impairing physiological function during key growth phases.

Seed source and experimental design

High-purity (95%) sweet corn seeds (*Zea mays* Saccharata L., cultivar 'Hybrid', Lot No. 20017803, Label: 315) were sourced from Syngenta India Pvt. Ltd. The field experiment was organized in a randomized complete block design (RCBD) with three replicates across two treatment groups: untreated control (CONSCORG) and biofield energy-treated (BTSCORG). To prevent confounding variables, both cohorts were cultivated under identical environmental and agronomic conditions, following standardized protocols for irrigation, fertilization, and pest management.

Field layout

The experimental site occupied a total area of 70.0 m², arranged in a RCBD consisting of six individual plots (3 m × 3 m each; plot area = 9 m²) separated by 60 cm buffer zones between adjacent plots and replications. Within each plot, crops were established using a grid spacing of 0.5 m × 0.5 m.

Spiritual blessing (biofield/prayer) energy treatment (SBET) strategy

The experimental group (BTSCORG), comprising *Zea mays* seeds and soil matrices, received a single, 4-minute biofield energy treatment (BET). To prevent tactile confounding, an experienced practitioner with over 14 years of practice (Mrs. Dahryn Trivedi) administered the non-contact treatment from a fixed distance of 0.5 m. An untreated control group (CONSCORG) was maintained concurrently under identical environmental parameters. Ambient conditions during exposure were strictly controlled at 28 ± 2°C temperature and 65 ± 5% relative humidity to ensure experimental reproducibility.

Soil characterization and sample preparation

Baseline physicochemical characterization was conducted using composite topsoil samples collected to a depth of 30 cm across five systematic points per plot. Prior to analysis, the soil was air-dried under ambient conditions, sieved to <2 mm, and stored at 4°C. Particle size distribution was determined according to published protocols [10], while soil pH was recorded potentiometrically in a 1:2 (w/v) soil–deionized water suspension.

Agronomic management and plant protection

Plots were hand-watered for seven days following direct sowing to ensure crop establishment before switching to a surface drip irrigation system. The system utilized pressure-compensating emitters spaced 0.5 m apart with a discharge rate of 3 L h^{-1}. Baseline fertilization consisted of 50:100:50 kg ha^{-1} of N, P, and K. At sowing, all phosphorus (applied as single superphosphate), all potassium (applied as muriate of potash), and half of the total nitrogen (applied as urea) were incorporated basally. The remaining 50% nitrogen was side-dressed 21 days after sowing (DAS). To prevent pest damage from introducing confounding variables, plots received a foliar spray of a commercial insecticide mixture containing 50% chlorpyrifos and 5% cypermethrin (Hamla 550, Gharda Chemicals Ltd., India) at a concentration of 2 mL L^{-1}.

Growth and morphological parameters

Vegetative and reproductive parameters were evaluated 80 DAS using five randomly selected sweet corn plants per plot. Qualitative and quantitative data collected pre- and post-flowering included growth habit, stem size, leaf morphology, flowering traits, and fruit development. Additional plot-level measurements encompassed germination, 50% tasseling and silking, anthesis-silking interval, ear dimensions (length and width), days to 80% fruiting, and yield metrics.

Yield parameters

At physiological maturity, sweet corn ears were harvested, and five plants were randomly sampled per plot to determine ear dimensions (length and diameter, cm) and mass. Plot yield (kg) was converted to a tonnes-per-hectare basis.

Statistical analysis

Data are expressed as the mean ± standard error of the mean (SEM). Inter-group comparisons across the two independent cohorts were conducted via a two-tailed Student's t-test. Analyses were run using SigmaPlot (version 14.0), and the threshold for statistical significance was predetermined at $p < 0.05$.

RESULTS

Soil properties

Initial characterization identified a strongly acidic (pH 5.01) sandy loam prone to low effective cation exchange capacity (ECEC) and concomitant nutrient leaching. Post-harvest, SBET application mitigated this acidity, shifting the soil pH upward to 5.90.

Phenological progression and morphology of *Zea mays*

To map the ontogenesis of sweet corn *(Zea mays* Saccharata L.*)* we systematically tracked its morphology across distinct growth stages. This study provides a quantified phenological timeline that captures critical developmental milestones from germination and seedling establishment through vegetative expansion, anthesis, and fruit maturation (Figure 1).

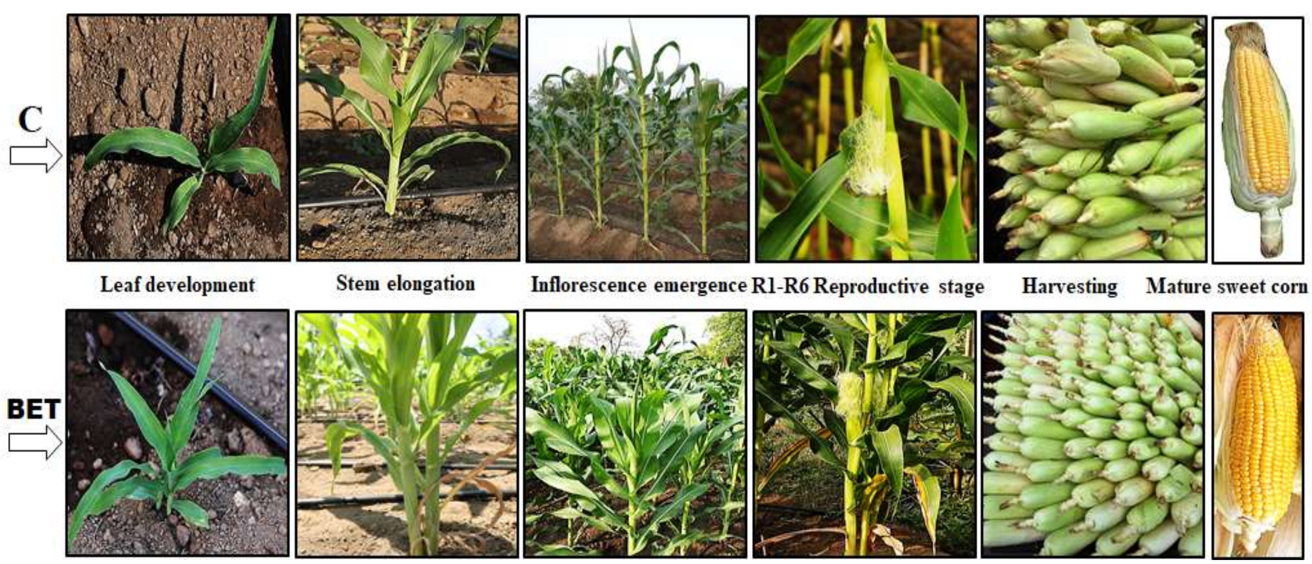

Figure 1. Sample images illustrate the changes at various stages of the sweet corn's vegetative and reproductive growth characteristics. C, control group; T, Blessing/biofield energy treated group. R1: Silking, R2: Blistering, R3: Milking, R4: Doughing, R5: Denting, R6: Physiological maturity.

Morphological characteristics

Leaf colour was dark green in the blessing (biofield) energy-treated group (BTSCORG) as compared to the control group (CONSCORG), green. Drooping leaf orientation was observed for CONSCORG and erect for BTSCORG. Leaf pubescence was present in the BTSCORG, while it was absent in the CONSCORG. The tassel texture of CONSCORG was lax (less dense) and dense for BTSCORG. The tassel-anther glume colour of sweet corn was light yellowish green in the CONSCORG group and BTSCORG had white yellowish colour. The tassel-glume base colour of sweet corn was absent in the CONSCORG group and present in the BTSCORG. The silk colour at emergence in the BTSCORG and CONSCORG group was light white and light yellowish green, respectively. The ear (cob) shape was cylindrical conical for CONSCORG, and cylindrical for BTSCORG. The kernel colour of BTSCORG and CONSCORG groups was intense yellow and light yellow, respectively. The kernel/grain texture, taste, and size of BTSCORG were soft, sweeter, and larger, whereas those of the CONSCORG group were slightly soft, less sweet, and medium. Husk cover was very good in the BTSCORG, while good in the CONSCORG. Both BTSCORG and CONSCORG had smooth leaf texture, upright plant growth habit, broad leaf width, presence of anthocyanin pigment, regular kernel row arrangement, and flat grain shape (Table 1).

Table 1. Impact of spiritual blessing (biofield) energy treatment on qualitative vegetative parameters of sweet corn at 80 days after sowing (DAS).

Vegetative trait	Control group (CONSCORG)	Treatment group (BTSCORG)
Plant growth habit	Upright	Upright
Leaf color	Green	Dark green
Leaf orientation	Dropping	Erect
Leaf pubescence	Absent	Present
Leaf texture	Smooth	Smooth
Leaf width	Broad	Broad
Anthocyanin pigmentation	Present	Present
Tassel texture	Lax (less dense)	Dense
Tassel-anther glume colour	Light yellowish green	White yellowish
Tassel-glume base colour	Absent	Present
Silk colour at emergence	Light yellowish green	Light white
Ear shape	Cylindrical conical	Cylindrical
Husk cover	Good	Very good
Kernel row arrangement	Regular	Regular
Kernel color	Light yellow	Intense yellow
Grain texture and taste	Slightly soft and less sweet	Soft and sweeter
Grain shape	Flat	Flat
Grain size	Medium	Large

Phenology and yield traits

Blessing energy-treated sweet corn exhibited significant differences with respect to various growth and yield traits as compared to the control group (**Table 2).** The rate of germination was significantly increased by

13.64% ($p \leq 0.001$) in the BTSCORG compared to the CONSCORG. Plant height and stem diameter were significantly increased by 20.58% ($p \leq 0.001$) and 16.29% ($p \leq 0.001$), respectively, in the BTSCORG compared to the CONSCORG. Number of leaves per plant, leaf length, leaf width, flag leaf length, and flag leaf width were significantly increased by 17.91% ($p \leq 0.001$), 20.60% ($p \leq 0.001$), 42.77% ($p \leq 0.001$), 38.53% ($p \leq 0.001$), and 48.14% ($p \leq 0.001$), respectively, in the BTSCORG than CONSCORG. Anthesis silk interval and tassel branching were significantly improved by 32.96% ($p \leq 0.001$) and 29.63% ($p = 0.022$), respectively, in the BTSCORG than CONSCORG. Fruit pedicel length, ear/cob length, and ear/cob diameter were significantly increased by 38.29% ($p \leq 0.001$), 43.23% ($p \leq 0.001$), and 60.87% ($p \leq 0.001$), respectively, in the BTSCORG with respect to CONSCORG. Number of husks per ear, number of kernels per row, kernels per plant, and 100-gram seed weight were significantly increased by 12.64% ($p \leq 0.001$), 59.81% ($p \leq 0.001$), 64.82% ($p \leq 0.001$), and 15.06% ($p \leq 0.001$), respectively, in the BTSCORG compared to the CONSCORG. Finally, the grain yield/hectare (ton/h) and straw/stover yield/hectare (ton/ha) were improved by 81.70% and 35.06%, respectively, in the BTSCORG compared to the CONSCORG (Table 2).

Table 2. Evaluation of the phenological and yield characteristics of sweet corn following spiritual (biofield/prayer) blessing energy treatment (SBET).

Vegetative trait	**Control group (CONSCORG)**	**Treatment group (BTSCORG)**	***P* value**
Days to germination	5 -7	5- 6	-
Germination percentage	85.31 ± 0.13	96.95 ± 0.08	$p \leq 0.001$
Plant height (cm)	198.34 ± 2.89	239.15 ± 2.43	$p \leq 0.001$
Stem diameter (cm)	3.56 ± 0.03	4.14 ± 0.02	$p \leq 0.001$
Number of leaves per plant	15.24 ± 0.31	17.97 ± 0.19	$p \leq 0.001$
Leaf length (cm)	74.40 ± 1.53	89.73 ± 1.52	$p \leq 0.001$
Leaf width (cm)	6.57 ± 0.04	9.38 ± 0.05	$p \leq 0.001$
Flag leaf length (cm)	36.57 ± 1.87	50.66 ± 1.41	$p \leq 0.001$
Flag leaf width (cm)	4.03 ± 0.14	5.97 ± 0.25	$p \leq 0.001$
Days to 50% tasseling	72.31 ± 1.35	70.75 ± 1.42	$p = 0.449$
Days to 50% silking	74.10 ± 1.28	73.41 ± 1.59	$p = 0.744$
Anthesis silk interval	2.67 ± 0.04	3.55 ± 0.05	$p \leq 0.001$
Tassel branching	19.27 ± 1.64	24.98 ± 1.16	$p = 0.022$
Days to 80% fruiting	75.86 ± 1.39	71.85 ± 1.17	$p = 0.058$
Fruit pedicel length (cm)	4.44 ± 0.02	6.14 ± 0.05	$p \leq 0.001$
Ear/cob length (cm)	15.89 ± 0.14	22.76 ± 0.14	$p \leq 0.001$
Ear/cob diameter (cm)	3.45 ± 0.06	5.55 ± 0.08	$p \leq 0.001$
Number of husks per ear	10.05 ± 0.04	11.32 ± 0.05	$p \leq 0.001$
Number of kernels per row	26.67 ± 0.69	42.62 ± 0.63	$p \leq 0.001$

Number of kernel rows per ear	11.03 ± 0.04	11.95 ± 0.07	$p \leq 0.001$
Kernels per plant	613.24 ± 31.28	1010.72 ± 26.36	$p \leq 0.001$
Kernel weight (g)	0.21 ± 0.01	0.25 ± 0.02	$p = 0.111$
Grain yield per plant (kg/plant)	0.14	0.28	-
Crop duration (days)	95.61 ± 1.87	92.93 ± 1.64	$p = 0.313$
100-grain seed weight (g)	22.58 ± 0.15	25.98 ± 0.07	$p \leq 0.001$
Total grain yield (kg)	4.12	7.51	-
Grain yield/sq. m plot (kg/sq. m)	0.15	0.28	-
Grain yield/hectare (ton/h)	1.53	2.78	-
Straw yield per plant (kg/plant)	0.61	0.91	-
Total stover/straw yield (kg)	18.25	24.65	-
Straw yield/sq. m plot (kg/sq. m)	0.68	0.91	-
Straw/stover yield/hectare (ton/ha)	6.76	9.13	-

Data tabulated as mean ± SEM (n = 5); $p \leq 0.05$ *vs.* control sweet corn group (CONSCORG) using Student's *t*-test

DISCUSSION

Early-stage seed germination and metabolic activation serve as critical determinants for downstream crop stand uniformity and yield potential. In the present study, the rate of germination in sweet corn (*Zea mays* L.) was significantly increased in the BTSCORG group compared to CONSCORG (**Table 2**). Rapid and synchronous germination provides an early competitive advantage by promoting rapid radicle elongation, cellular hydration, and enzymatic mobilization during early metabolic priming. This observation aligns with recent sweet corn seed physiological investigations by Behboud et al. 2024 [11], who demonstrated that enhanced physiological priming and metabolic fortification in sweet corn seed lead to significantly higher germination indices, early root vigour, and crop uniformity. The structural frame of the plant directly dictates its light-intercepting capacity and sink-source relationships. In this study, plant height and stem diameter in sweet corn were significantly elevated in BTSCORG over CONSCORG. Furthermore, total foliage development expanded remarkably including number of leaves per plant, leaf length, leaf width, flag leaf length, flag leaf width (**Table 2**). The disproportionate expansion in flag leaf dimensions was particularly impactful, as the flag leaf in sweet corn contributes the majority of current photosynthates allocated to kernel filling. These structural enhancements were substantiated by the findings of Li et al. 2024 [12], where an increased foliar expansion, stem diameter growth, and elevated chlorophyll accumulation.

Proper synchronization between pollen shed (anthesis) and silk emergence (silking) was vital to ensure complete kernel fertilization and prevent ear tip dieback in sweet corn. The anthesis-silk interval (ASI) and tassel branching in the BTSCORG were significantly improved compared to CONSCORG. A shorter ASI reduces the risk of unfertilized ovules caused by heat or moisture stress during fertilization. To understand the underlying biological framework of these physiological gains, Trivedi et al. 2020, highlighted that systemic metabolic and biostimulatory interventions optimize physiological fitness, hormone balance, and reproductive synchronization in agricultural crops under varying field environments [13].

The morphological attributes of sweet corn cobs were dramatically enhanced in the BTSCORG relative to CONSCORG, including fruit pedicel length, ear/cob length, ear/cob diameter, number of husks per ear. These structural improvements in cob dimensions provided the physical framework to accommodate higher kernel densities including kernels per row, kernel rows per ear, 100-gram seed weight. The simultaneous increase in both kernel row number and individual seed weight confirms that sink strength was efficiently supported by increased source activity. These findings align with sweet corn yield component analyses reported by Stansluos et al. 2024 [14], who reported that structural increases in ear length, cob diameter, and kernel row numbers in sweet corn are the direct drivers of individual plant yield potential.

Ultimately, the cumulative vegetative and reproductive enhancements in BTSCORG culminated in exceptional yield performance gains such as grain yield per hectare was increased. The dramatic elevation in grain yield combined with an increase in stover biomass demonstrates superior harvest index and photosynthetic conversion efficiency. This substantial productivity gain in sweet corn was corroborated by field evaluation studies by Contreras-Liza et al. 2024 [15], who confirmed that agronomic treatments boosting kernel row settings and vegetative biomass yield proportional surges in total sweet corn grain yield and commercial ear biomass.

CONCLUSION

The treatment group, BTSCORG, significantly enhances both vegetative vigour and reproductive organ development compared to CONSCORG. Substantial, statistically significant gains were evident in BTSCORG across vegetative traits, particularly in leaf dimensions and tassel branching. Overall, BTSCORG demonstrates clear superiority in driving robust crop architecture and primary yield-determining attributes over CONSCORG. Biofield energy treatment holds potential as a viable, sustainable tool in organic and integrative agricultural practices to maximize crop productivity.

Abbreviations

SBET: spiritual blessing energy treatment; RCBD: randomized complete block design; CONSCORG: control sweet corn group; BTSCORG: biofield energy-treated sweet corn group; DAS: days after sowing; SSP: single super phosphate; MOP: muriate of potash

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Conflict of Interests

Author DT was employed by Trivedi Global, Inc. TBG, VDK, and NRP were employed by Shree Angarsiddha Shikshan Prasarak Mandal's College of Agriculture, Sangulwadi, Mohitewadi, Maharashtra, India. Authors SM and SJ were employed by Trivedi Science Research Laboratory Pvt. Ltd.

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