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NATURE'S BEST FRIENDS: HOW CROPS SUPPORT EACH OTHER IN THE FIELD

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ABSTRACT

Farming is often viewed as a battle against nature, where plants are forced to compete for limited resources. However, agricultural science increasingly shows that crops can also cooperate. This article explores the concept of companion cropping, a practice in which different plants are grown together to support one another. In particular, it examines the practical relationship between Garlic and Coriander, where Coriander helps protect young Garlic plants by moderating sunlight exposure, while Garlic reduces pest pressure through its strong natural odor. By also reviewing classic examples such as maize, beans, and squash, this article demonstrates how working with natural plant interactions can improve crop health while reducing dependence on chemical inputs.

KEYWORDS: Companion cropping, garlic–coriander association, intercropping, pest suppression, sustainable agriculture

INTRODUCTION

Imagine living in a neighborhood where nobody communicates. Every household builds barriers, protects its own resources, and struggles alone. Now imagine a different neighborhood—one where neighbors share tools, look out for each other, and create a safer, more comfortable environment together. This contrast closely reflects the difference between monoculture farming and companion cropping.

For centuries, farmers have observed that certain plants perform better when grown alongside specific companions. Companion cropping is the practice of planting multiple crop species together so that each benefits from the presence of the others. Rather than competing for survival, these plants form natural partnerships. Each crop has its own strengths and weaknesses—some grow tall, some spread wide, some repel pests, and others improve soil health. When these traits are combined intentionally, the field functions as a cooperative system rather than a collection of isolated plants. This article explores such cooperation through the example of Garlic and Coriander, supported by other well-known companion

cropping systems.

THE PERFECT PARTNERSHIP: GARLIC AND CORIANDER

A practical and effective example of companion cropping can be found in the pairing of Garlic (*Allium sativum*) and Coriander (*Coriandrum sativum*). While commonly associated with cooking, these two crops demonstrate complementary roles in the field. Their interaction operates through two key mechanisms: microclimate regulation and pest deterrence.

Figure 1. Garlic and coriander grown together in a companion cropping system (Image generated using Google Gemini for illustrative purposes)

1. *Natural Shade for Young Garlic:* Garlic plants are particularly sensitive during their early growth stages. Newly emerged shoots are small and vulnerable to excessive heat and moisture loss. Coriander, on the other hand, establishes rapidly and produces a dense canopy of leaves. When grown together, Coriander partially shades the soil surface, reducing direct exposure to intense sunlight. This moderated environment helps maintain soil moisture and prevents heat stress in young Garlic plants, allowing them to establish more successfully.
2. *Pest Deterrence through Garlic's odour:* Coriander is susceptible to damage from various insect pests that feed on its foliage. Garlic protects its strong aroma, which is produced by sulfur-containing compounds such as allicin. These compounds are widely documented for their insect-repellent properties. When Garlic is grown alongside Coriander, its odour interferes with pest host-finding behaviour, reducing insect infestation without the need for synthetic pesticides. This interaction allows both crops to grow with reduced pest pressure under natural field conditions (Zehnder et al., 2007; Nwauzoma & Dawari, 2013).

Together, these physical and chemical interactions illustrate how companion cropping creates functional relationships that benefit both plant species.

Other Examples of Crop Cooperation

The partnership between Garlic and Coriander is only one of many examples found in traditional and modern agriculture.

THE "THREE SISTERS": MAIZE, BEANS, AND SQUASH

One of the well-documented companions cropping systems is the "Three Sisters," developed by Indigenous farmers of North America. In this system, maize grows vertically and provides structural support for climbing bean plants. Beans contribute to soil fertility by fixing atmospheric nitrogen, making nutrients available to neighbouring crops. Squash spreads along the ground, covering the soil surface with broad leaves that suppress weed growth and reduce evaporation. When cultivated together, these crops create a balanced growing environment that enhances productivity and resource efficiency compared to growing each crop alone.

Figure 2. The traditional three sisters system: Maize, Beans and Squash (Image generated using Google Gemini for illustrative purposes)

1. Tomatoes and Basil: In home gardens and small farms, Basil is frequently planted near Tomatoes. Basil emits aromatic compounds that discourage pests such as tomato hornworms and certain flies. Many growers also report improved plant vigour and flavour quality in Tomatoes grown alongside Basil, making this pairing popular in both culinary and agricultural contexts.

2. Carrots and Onions: Carrots and Onions benefit from each other through mutual pest confusion. Onion odour disrupts the activity of carrot rust flies, while carrot odour interferes with onion flies. By masking each other's presence, these crops experience reduced pest damage without chemical intervention.

WHY THIS MATTERS: IMPLICATIONS FOR SUSTAINABLE AGRICULTURE

Companion cropping has significant implications for the future of agriculture. When crops are selected to complement one another, they form small-scale ecosystems that regulate temperature, moisture, nutrients, and pest populations naturally. Such systems reduce reliance on synthetic fertilisers and chemical pesticides, helping to protect soil health, water quality, and biodiversity.

For a global audience increasingly concerned about sustainable food production, practices like growing Garlic and Coriander together demonstrate that environmentally friendly farming methods are both practical and effective. Rather than forcing crops to survive in isolation, companion cropping encourages cooperation that aligns with natural ecological processes.

CONCLUSION

The idea that crops in a field can be “dost” (friends) is not merely symbolic it reflects real biological interactions that improve agricultural outcomes. The relationship between Garlic and Coriander shows how plants can protect and support one another through shade regulation and pest deterrence. Similar partnerships, such as the Three Sisters system, further illustrate the value of cooperation over competition. By adopting companion cropping techniques, farmers and gardeners move away from intensive control-based practices and toward systems based on mutual support. These examples suggest that the future of agriculture may depend less on chemical inputs and more on understanding and encouraging natural plant relationships.

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