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### VEGETABLE SUPPORT APPARATUS

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#### Abstract

A multifunctional gardening device designed to support includes a vegetable support member with a sidewall featuring at least one aperture, which may receive a vertical support member, thereby securing the vegetable support member in place. Extending from the sidewall is a base member characterized by a curved shape, forming the bottom surface of the vegetable support member. The vegetable support member also incorporates a distal end portion of the base member, projecting away from the sidewall, which defines a curved profile. Additionally, the base member is equipped with at least one second aperture on its bottom surface, purposed for facilitating fluid drainage.

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## Background/Summary

CROSS-REFERENCE TO RELATED APPLICATION [0001] The present Non-Provisional patent application claims priority to U.S. Provisional Patent Application No. 63/552,871, filed on Feb. 13, 2024, the entire contents of which are incorporated by reference herein.

### FIELD

[0002] The present disclosure relates to an agricultural apparatus, and more particularly, to a system and method of supporting vegetables or other plants.

### BACKGROUND

[0003] Cultivating vegetable or fruit-bearing plants presents unique challenges, particularly in supporting the plants as they grow to maturity. Traditional support methods, such as wooden stakes, trellises, and wire cages, have been commonly used by gardeners and commercial growers. These conventional means, while somewhat effective, have several drawbacks. They often fail to provide adequate support to the growing plants, leading to bent or broken stems, reduced air circulation, and increased susceptibility to diseases and pests. Additionally, these methods can be labor-intensive to set up and maintain and may not be easily adaptable to the varying growth patterns of different plant species. There is a recognized need for a more efficient, flexible, and robust support system that can accommodate the dynamic needs of various vegetable and fruit-bearing plants, thereby enhancing plant health, facilitating easier maintenance, and potentially increasing yield. Addressing these needs, the proposed support apparatus not only provides effective vegetable plant support but also incorporates multiple functionalities to enhance overall gardening efficiency.

### SUMMARY

[0004] Provided in accordance with aspects of the present disclosure is a multifunctional gardening device for supporting vegetables. The vegetable support assembly includes a vertical support member and a vegetable support member arranged along the vertical support member. The vegetable support member includes a first sidewall that defines at least one first aperture. The first aperture is configured to receive the vertical support member, thereby securing the vegetable support member to the vertical support member. The base member extends from the first sidewall. The base member defines the vegetable support member's curved bottom surface. Additionally, the base member defines a distal end portion facing away from the first sidewall. The base member's distal end defines a curved shape facing away from the first sidewall. At least one second aperture is defined on the bottom surface of the base member. The second aperture is configured to drain fluid through the base member.

[0005] In an aspect of the present disclosure, the first sidewall defines a plurality of first apertures wherein each first aperture is configured to receive the vertical support member.

[0006] In an aspect of the present disclosure, the base member defines at least one first cradle and at least one second cradle. The first and second cradles are individually configured to support a vegetable. At least one second sidewall extends orthogonally from the base member. The second sidewall at least partially separates the first and second cradles.

[0007] In an aspect of the present disclosure, the at least one second aperture includes a plurality of second apertures. The second apertures in the plurality of second apertures each define different diameters.

[0008] In an aspect of the present disclosure, the at least one second aperture defines a projecting sidewall. The projecting sidewall extends downward from the base member's bottom surface. The downward projecting sidewall is configured to shear thorns from a stem as the stem is pulled upwardly through the at least one second aperture.

[0009] In an aspect of the present disclosure, a downwardly angled recess is formed in the base member. The downwardly angled recess is configured to direct water into the at least one second

aperture.

[0010] In an aspect of the present disclosure, the base member includes at least one cutout or notch on at least one side of the base member. The at least one cutout or notch is configured to support a plant hook.

[0011] In an aspect of the present disclosure, the base member includes at least one cutting edge defined in at least one side of the base member.

[0012] In an aspect of the present disclosure, the at least one cutting edge includes a plurality of teeth defining a serrated edge.

[0013] In an aspect of the present disclosure, the first sidewall includes at least one handle extending from the first sidewall. The vegetable support member is configured to operate as a shovel while a user is holding the handle.

[0014] In an aspect of the present disclosure, the distal end of the base member defines at least one distal-facing notch. The at least one distal-facing notch is configured to securely grip a root.

[0015] In an aspect of the present disclosure, the vegetable support assembly includes a threaded bore defining at least one handle. Additionally, a dibber is configured to be removably coupled with the threaded bore of the handle. The dibber is configured to form a hole in a planting substrate.

[0016] In an aspect of the present disclosure, the dibber includes a plurality of fins extending from the dibber's sidewall. The fins of the plurality of fins are configured to remove material from the hole.

[0017] In an aspect of the present disclosure, the base member, dibber, or both defines a plurality of measurement markings configured to indicate a depth of insertion into soil.

[0018] In an aspect of the present disclosure, the vegetable support assembly includes at least one threaded bolt configured to be threaded into at least one bore extending into the at least one first aperture, allowing the vegetable support member to be removably couplable to the vertical support member.

[0019] In an aspect of the present disclosure, the vegetable support member includes at least one projection extending downwards from the bottom surface of the base member. The at least one projection is configured to connect with at least one string or rope.

[0020] In an aspect of the present disclosure, the vegetable support assembly includes at least one handle extending from the first sidewall. The vegetable support member is configured to operate as a shovel by holding the handle. The threaded bore is defined in the at least one handle, where the threaded bore is configured to removably receive and support at least one accessory product.

[0021] In an aspect of the present disclosure, the vegetable support member includes a hose support bracket arranged at the distal end portion of the base member. A hose receiving orifice is defined in the first sidewall.

[0022] In an aspect of the present disclosure, a second hose receiving orifice is defined in the dibber.

[0023] In an aspect of the present disclosure, a hose is configured to extend from the hose support bracket and through the hose receiving orifice and the second hose receiving orifice.

[0024] In an aspect of the present disclosure, a nozzle is supported at a distal end of the hose and a hose connecting assembly configured to connect the hose with a source of water is arranged at a proximal end of the hose.

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## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Various aspects and features of the present disclosure are described hereinbelow with reference to the drawings wherein:

[0026] FIG. 1A is a top, perspective view of the vegetable support member, including a detachable

dibber according to aspects of the present disclosure;

[0027] FIG. 1B is a bottom, perspective view of the vegetable support member according to aspects of the present disclosure;

[0028] FIG. 2 is a lateral view of the vegetable support member with a vertical support member inserted in the first aperture according to aspects of the present disclosure;

[0029] FIG. 3 is an enlarged, top plan view of the vegetable support member displaying the distal facing notch, a plurality of measurement markings, cutting edge, and drainage second apertures according to aspects of the present disclosure;

[0030] FIG. 4A is a top, perspective view of the couplable dibber tool attached to the vegetable support member's handle according to aspects of the present disclosure;

[0031] FIG. 4B is an enlarged view of the threaded bore of the vegetable support member's handle, and the dibber detached therefrom according to aspects of the present disclosure;

[0032] FIG. 5A is a bottom, perspective view of the vegetable support member displaying an exemplary notch configured to support a plant hook according to aspects of the present disclosure;

[0033] FIG. 5B is an enlarged, bottom, perspective view of the vegetable support member displaying the second aperture's projecting sidewalls extending downward according to aspects of the present disclosure;

[0034] FIG. 6A is a bottom, perspective view of an exemplary vegetable support member and a removable dibber attachable via a threaded bore according to aspects of the present disclosure;

[0035] FIG. 6B is a bottom-up view of another exemplary vegetable support member with a distal cut out notch, plant ring, and two cradles according to aspects of the present disclosure;

[0036] FIG. 6C is a bottom, perspective view of another exemplary vegetable support member according to aspects of the present disclosure;

[0037] FIG. 7 is a lateral view of two vegetable support members arranged along a vertical support member according to aspects of the present disclosure.

[0038] FIG. 8 is a top, perspective view of a vegetable support member, including a detachable dibber according to aspects of the present disclosure;

[0039] FIG. 9 is a top, perspective view of the vegetable support member of FIG. 8 with the dibber detached therefrom;

[0040] FIG. 10A is an enlarged, perspective view of the dibber of FIG. 8;

[0041] FIG. 10B is an enlarged, side view of the dibber of FIG. 8;

[0042] FIG. 11 is a rear, perspective view of a vegetable support member, including a detachable dibber according to aspects of the present disclosure;

[0043] FIG. 12 is a rear, perspective view of the vegetable support member of FIG. 11; and

[0044] FIG. 13 illustrates an exemplary arrangement of a hose employable by a vegetable support member according to aspects of the present disclosure.

#### DETAILED DESCRIPTION

[0045] Descriptions of technical features or aspects of an exemplary configuration of the disclosure should typically be considered as available and applicable to other similar features or aspects in another exemplary configuration of the disclosure. Accordingly, technical features described herein according to one exemplary configuration of the disclosure may be applicable to other exemplary configurations of the disclosure, and thus duplicative descriptions may be omitted herein.

[0046] Exemplary configurations of the disclosure will be described more fully below (e.g., with reference to the accompanying drawings). Like reference numerals may refer to like elements throughout the specification and drawings.

[0047] While various support members configured to support vegetables are described herein, the vegetable support members can similarly be employed to support plants other than vegetables.

[0048] Referring particularly to FIGS. 1A, 1, 2, 4A, 4B, 5A, 5B and 6A, a vegetable support member **101** includes a first sidewall **102** that defines at least one first aperture (see, e.g., apertures **103**, **104**, and **105**). The first aperture is configured to receive the vertical support member **201**

(see, e.g., FIG. 2), thereby securing the vegetable support member **101** to the vertical support member **201**. While three apertures are shown and described with respect to FIGS. 1A to 2, other vegetable support members shown and described herein may include more or less than two apertures configured to receive the vertical support member **201**. For example, vegetable support members **401** and **501** may each include two apertures (see, e.g., apertures **403** and **405** in FIG. 13) configured to receive the vertical support member **201**.

[0049] A base member **106** extends from the first sidewall **102**. The base member **106** defines the vegetable support member's curved bottom surface **107**. Additionally, the base member **106** defines a distal end portion **108** facing away from the first sidewall **102**. The base member's distal end **108** defines a curved shape facing away from the first sidewall **102**. The base member **106** and the first sidewall **102** may be a single integrally formed/unitary structure. As an example, the base member **106** and the first sidewall **102** may each include or may each be formed of a plastic, polymer, composite, or similar material (e.g., a material suitable for 3-D printing or injection molding). The base member **106** and the first sidewall **102** may each include, for example, Polyethylene (PE), Polypropylene (PP), Polyvinyl Chloride (PVC), Polystyrene (PS), Polyethylene Terephthalate (PET), Polyurethane (PU), Polycarbonate (PC), Acrylonitrile Butadiene Styrene (ABS), Nylon (Polyamide), or Polyvinylidene Fluoride (PVDF).

[0050] The first aperture (see, e.g., apertures **103**, **104**, and **105**) may define a circular shape or a shape that corresponds with the shape of the vertical support member **201**. In use, once inserted, the vertical support member **201** remains securely fashioned to the vegetable support member **101**, contributing to the apparatus's stability, a feature that can be particularly valuable in outdoor conditions and while supporting vegetables as the vegetables grow. The vertical support member **201** may be similarly employed by the other vegetable support members **201**, **301**, **401**, and/or **501** described herein (see, e.g., FIG. 7).

[0051] In use, the vertical support member **201** serves to provide stability and potentially allowing for height adjustment for the vegetable support members **101**, **201**, **301**, **401**, and/or **501**. The vertical support member **201** offers a steady base, helping the apparatus withstand external factors like wind. Additionally, the design of this member may include features for adjusting its height, making it suitable for supporting various types of vegetables at different stages of growth. The connection between the vertical support member **201** and the vegetable support members **101**, **201**, **301**, **401**, and/or **501** ensures the apparatus functions effectively in a garden setting.

[0052] The vertical support member **201** of the vegetable support apparatuses **101**, **201**, **301**, **401**, and/or **501** may be constructed from a variety of materials, depending on the desired strength, durability, and weight. Materials for constructing the vertical support member **201** may include metals like steel or aluminum for robustness and longevity, or plastics, polymers and composite materials for lighter weight and potential cost-effectiveness. The selection of material would include such considerations as resistance to outdoor elements, ease of manufacturing, and overall impact on the apparatus's functionality and usability in a garden environment. As an example, the vertical support member **201** may include, for example, Polyethylene (PE), Polypropylene (PP), Polyvinyl Chloride (PVC), Polystyrene (PS), Polyethylene Terephthalate (PET), Polyurethane (PU), Polycarbonate (PC), Acrylonitrile Butadiene Styrene (ABS), Nylon (Polyamide), or Polyvinylidene Fluoride (PVDF).

[0053] The shape of the vertical support member **201** in the vegetable support apparatuses **101**, **201**, **301**, **401**, and/or **501** may be cylindrical or rectangular, optimized for easy handling, and structural stability. Its height could be adjustable or fixed, potentially ranging from a few feet to several feet (e.g., from about 1 foot to about 8 feet), to accommodate different plant sizes and gardening needs.

[0054] At least one second aperture (see, e.g., second apertures **109**, **110**, **111**, and/or **112**) is defined on the bottom surface **107** of the base member **106**. The second aperture is configured, for example, to drain fluid through the base member **106**.

[0055] The second aperture (see, e.g., second apertures **109**, **110**, **111**, and/or **112**) may define a circular or cylindrical shape. Additionally, the second aperture may be a different diameter or shape than the first aperture (see, e.g., apertures **103**, **104**, and **105**). The second apertures may also define different sizes or different diameters from each other.

[0056] The second apertures are optimally arranged along the bottom of the base member to facilitate fluid drainage from the bottom surface **107** of the base member **106**.

[0057] In an aspect of the present disclosure, the first sidewall **102** defines a plurality of first apertures wherein each first aperture is configured to receive the vertical support member **201**. The plurality of first apertures may define a same shape as each other. The plurality of first apertures may be arranged linearly or staggered with respect to an axis extending perpendicularly to the extending direction of the base member **106**.

[0058] The first apertures may be circular in shape. The specific shape is chosen to correspond to the vertical support member's **201** form, ensuring an optimal fit. The congruence in shape between the first aperture and the vertical support member **201** facilitates a snug and efficient assembly for the stability and functionality of the apparatus.

[0059] The curved base member **106** of the vegetable support apparatus is designed to enhance its functionality in garden settings. This component, extending from the first sidewall **102**, may be characterized by a semi-circular curved bottom surface **107**. The curvature can facilitate the stable support of various types of vegetables, preventing them from rolling off or being displaced.

Additionally, the curvature can contribute to efficient water drainage, helping to keep the vegetables dry and healthy. The distal end portion **108** of the base member, facing away from the first sidewall **102**, may also feature a curved design. This aspect of the base member's design not only adds to the aesthetic appeal of the apparatus but could also provide ergonomic benefits, making it easier to handle and maneuver during gardening activities.

[0060] In an aspect of the present disclosure, the base member **106** defines at least one first cradle **113** and at least one second cradle **114**. The first and second cradles **113** and **114** are individually configured to support a vegetable. Similar cradles **413** and **414** are shown, for example, in FIG. **13**, and may be separated by sidewall **415**. At least one second sidewall **115** (see, e.g., FIGS. **1A** and **4A**) extends orthogonally from the base member **106**. A similar sidewall **515** is shown for example, in FIG. **13**. The second sidewall **115** at least partially separates the first and second cradles **113** and **114**. This can prevent two vegetables from coming into contact with each other, which can prevent rotting or other damage to such vegetables. The second sidewall **115** also increases the structural rigidity of the base member **106**, which can be particularly useful if the vegetable support member is employed as a shovel, as described herein.

[0061] The cradles **113** and **114** are designed to conform to the shape of various vegetables, providing stable and secure support. Additionally, the second sidewall **115** may prevent the vegetables from contacting each other, minimizing the risk of damage or displacement. The sidewall **115** not only helps in organizing the vegetables but also contributes to the overall structural integrity of the cradles, ensuring durability and effectiveness in a dynamic garden environment. A similar sidewall **415** may be included in vegetable support member **401** (see, e.g., FIG. **13**).

[0062] This variety in aperture sizes (see, e.g., apertures **109**, **110**, **111**, and **112**) allows for greater flexibility and adaptability in the apparatus's function. The different diameters of these apertures can accommodate stems or shoots of various sizes, ensuring that a wide range of vegetables can be supported effectively. Additionally, the variation in aperture sizes can be beneficial for drainage purposes, allowing water to escape more efficiently and thus contributing to the health and maintenance of the vegetables. The presence of multiple apertures of varying diameters in the base member **106** thus enhances the versatility and practicality of the vegetable support apparatus in a garden setting.

[0063] The plurality of second apertures (see, e.g., apertures **109**, **110**, **111**, and **112**) may be

arranged linearly or staggered along the bottom of the curved base member.

[0064] Unless otherwise indicated herein, vegetable support members **201**, **301**, **401**, and **501** may have substantially the same arrangement as vegetable support member **101**. Additionally, any feature described with respect to one embodiment of a vegetable support member is similarly applicable to another of the vegetable support members described herein. Thus, duplicative descriptions may be omitted herein.

[0065] Referring particularly to FIGS. **3** and **5B**, the second apertures (e.g., second apertures **209** and **210** of vegetable support member **201**, or second apertures **509** and **510** of vegetable support member **501**) each define a projecting sidewall (see, e.g., projecting sidewalls **216** and **217** of vegetable support member **201** or projecting sidewalls **516** and **517** of vegetable support member **501**). The projecting sidewall extends downward from the corresponding base member's bottom surface. The downward projecting sidewall is configured to shear thorns from a stem as the stem is pulled upwardly through the corresponding aperture after having been inserted therein. This feature is particularly useful for handling vegetables or plants with thorny stems, as it aids in the safe and efficient removal of thorns, reducing the risk of injury or damage to the plant.

[0066] The downward sloped angle of the projecting sidewalls also helps with drainage through the bottom surface of the base member. Referring particularly to FIGS. **3**, **11**, and **13**, a downwardly angled recess (see, e.g., recesses **412**, **518** and **519**) is formed in base member **506**. The downwardly angled recess is configured to direct water into the at least one second aperture (e.g., apertures **509** or **510** in bottom surface **507** of base member **506**).

[0067] The downwardly angled recess is specifically configured to channel water towards the at least one second aperture. The angle of the recess efficiently guides water toward the second aperture or distal end **508** of the base member **506**, ensuring that any moisture accumulating on the bottom surface **507** of the base member **506** is effectively directed away. This feature is particularly valuable for drainage purposes, as it helps in preventing waterlogging around the plants supported by the apparatus. The directed flow of water into the second aperture ensures that excess moisture is removed from the vicinity of the vegetables, contributing to their overall health and reducing the risk of water-related issues such as rot or mold growth. The integration of this angled recess into the base member **506** enhances the apparatus's functionality in managing water.

[0068] In an aspect of the present disclosure, the base member includes at least one cutout or notch (see, e.g., cutouts **120** and **121** in FIGS. **1A** and **2**) on at least one side of the base member **106**. The at least one cutout or notch is configured to support a plant hook.

[0069] The cutout or notch is configured to support a plant hook. The inclusion of the cutout or notch provides a dedicated space for attaching plant hooks, which may support climbing plants or vines. This design allows for the easy and secure attachment of hooks, facilitating vertical growth of certain vegetables or plants that require external support to thrive. The placement and sizing of the cutout or notch ensures that it can accommodate various hook sizes and styles, enhancing the apparatus's versatility. This addition to the base member **106** not only improves the utility of the vegetable support apparatus **101** but also contributes to a more organized and efficient gardening experience.

[0070] A plant hook is a functional accessory in gardening, primarily utilized to support and manage plants that climb or need to be elevated. Typically shaped like a hook or curved in design, it can be affixed to a variety of structures including trellises, stakes, and walls. This type of hook is also suitable for integration into garden support apparatuses, providing a versatile solution for plant management and support in various gardening contexts.

[0071] In an aspect of the present disclosure, the base members **106** or **506** each include at least one cutting edge (see, e.g., cutting edge **122** including cutting teeth **124** and cutting edge **123** including cutting teeth **125** in FIG. **1A**, or cutting edge **522** including cutting teeth **524** and cutting edge **523** including cutting teeth **525** in FIG. **3**) defined in at least one side of the base members **106** or **506**. Similar cutting teeth **424** and/or **425** may be included in a cutting edge of vegetable

support member **410** (see, e.g., FIG. **8**).

[0072] The cutting edge is defined along at least one side of the base member. The inclusion of a cutting edge adds a functional dimension to the apparatus, allowing it to serve dual purposes: supporting plants and providing a tool for cutting. This feature can be particularly useful for tasks such as trimming plants, cutting twine or small branches, or other garden-related activities.

[0073] The base members **106** or **506** of the vegetable support apparatus **101** or **501**, respectively, can include various types of cutting edges to enhance its utility. A straight edge offers general-purpose cutting suitable for slicing thin plant stems or bags, while a serrated or saw-tooth edge is ideal for tougher materials like thick stems or small branches. Scalloped edges, with their larger, rounded teeth, provide a good grip for certain cutting tasks. For precision work, a hollow ground edge can be employed. Alternatively, a wave edge, combining straight and serrated qualities, offers versatile cutting options. Additionally, a pruning edge, which may be curved or angled, is specifically useful for plant trimming tasks. The teeth of the opposing cutting edges described herein may define different shapes or sizes from each other.

[0074] The cutting edge on the base member of the vegetable support apparatus may be made from durable materials such as stainless steel or high-carbon steel, known for their strength and resistance to corrosion and wear. These materials ensure longevity and maintain sharpness over time, crucial for effective cutting. Additionally, the cutting edge may be an integrated component of the vegetable support member and be made from the same material as the vegetable support member. Alternatively, the cutting edge may be detachable or interchangeable, offering flexibility and adaptability for different gardening tasks. This feature allows for easy replacement, cleaning, or sharpening of the cutting edge, while also providing the option to switch between different types of edges, like serrated or straight, depending on the specific gardening requirement. The detachable nature of the cutting edge also facilitates convenient cleaning and maintenance, ensuring the apparatus remains functional and efficient for prolonged use in various garden environments.

[0075] As an example, the at least one cutting edge includes a plurality of teeth defining a serrated edge (see, e.g. FIG. **3**). This serrated design is particularly effective for sawing through tougher plant materials, such as thick stems or branches, providing a more efficient cutting action than a straight edge. The presence of multiple teeth enhances the cutting ability, allowing for easier penetration and a smoother cutting motion. This type of edge is beneficial in a garden setting where a variety of cutting tasks may be encountered, offering versatility and increased functionality to the apparatus.

[0076] In an aspect of the present disclosure, the first sidewall includes at least one handle extending from the first sidewall (see, e.g., handle **126** of vegetable support member **101** in FIGS. **1A**, **1i**, **2**, **4A**, **4B**, **5A**, **6A**, and **7**, handle **226** of vegetable support member **201** in FIGS. **5B** and **6B**, handle **326** of vegetable support member **301** in FIGS. **6C** and **7**, handle **426** of vegetable support member **401** in FIGS. **8** and **9**, and handle **526** of vegetable support member **501** in FIGS. **3**, **11**, **12**, and **13**).

[0077] Referring particularly to FIG. **4B**, the handle **126** transforms the vegetable support member **101** into a multifunctional tool, allowing it to be used as a shovel, for example. When a user holds this handle **126**, the apparatus can be maneuvered for digging or moving soil, making it a versatile addition to gardening equipment; effectively combining the functionality of plant support with the practical utility of a shovel, providing gardeners with a tool that serves dual purposes. The inclusion of a handle **126** on the first sidewall **102** for shovel-like operation maximizes the utility and efficiency of the vegetable support apparatus **101** in various gardening tasks.

[0078] The handle **126** extending from the first sidewall **102** may be designed with specific considerations for shape to enhance usability and functionality. The shape of the handle **126** may be ergonomically curved or contoured to fit comfortably in the user's hand, reducing strain during prolonged use. The handle may include, for example, a number of finger grip contours **440**. This ergonomic design can be crucial for gardeners who engage in repetitive tasks, as it helps in



minimizing fatigue and discomfort. Additionally, the handle **126** might feature a non-slip surface or textured grip, providing better control and safety, especially in outdoor conditions where the handle may become wet or dirty. The size and diameter of the handle **126** may also be tailored to accommodate a range of hand sizes, ensuring that it is easily graspable and maneuverable. Furthermore, the handle **126** may be arranged with a slight angle relative to the first sidewall **102**, optimizing the leverage and force application when used as a shovel. This angled design aids in more efficient soil digging or lifting, making the gardening process smoother.

[0079] Referring particularly to FIGS. **3** and **6B**, the distal end (see, e.g., distal end **208** of vegetable support member **201**, distal end **408** of vegetable support member **401**, or distal end **508** of vegetable support member **508**) of the base member (e.g., base member **206**, **406** or **506**) defines at least one distal-facing notch (e.g., notch **227**, **427** or **527**). The at least one distal-facing notch is configured to securely grip a root.

[0080] The distal end notch is designed to grip roots securely. The configuration of this notch is such that it can accommodate and hold onto various root sizes and shapes, providing a firm grasp. This is particularly useful when dealing with plants that need to be uprooted or when roots require stabilization during gardening activities. The presence of this distal-facing notch adds a functional dimension to the apparatus, enhancing its utility not just as a support structure for vegetables, but also as a tool for effective root management.

[0081] The notch may potentially take several shapes. Potentially, the notch could include a V-shape, U-shape, or a forked design, each offering different benefits in terms of the size and type of roots they can grip. A V-shaped notch might be more suited for thinner, more delicate roots, providing a snug fit. In contrast, a U-shaped notch could offer a wider opening, ideal for thicker roots. A forked design might be beneficial for gripping multiple smaller roots simultaneously or for providing additional leverage.

[0082] Referring particularly to FIGS. **4A** and **4B**, the vegetable support member **101** may include a threaded bore **128** defined in handle **126**. Additionally, a dibber **129** is configured to be removably coupled with the threaded bore **128** of the handle **126**. The dibber **129** is configured to form a hole in a planting substrate.

[0083] The threaded bore **128** allows for the attachment of the dibber **129**, which is configured to be removably coupled with the handle **126**. The threaded design ensures a secure fit, providing stability during use. The dibber **129**, a gardening tool, is designed to create holes in a planting substrate, such as soil. The threaded bore **128** may also be configured to receive another threaded attachment, such as a long handle to convert the vegetable support member **101** into a full length shovel.

[0084] Referring particularly to FIGS. **4B**, **10A** and **10B**, dibbers **129** and **429** may include a threaded projection **150** and **450**, respectively, configured to be received in a corresponding threaded bore. A similar threaded projection may be included in dibber **529** (see, e.g., FIG. **11**).

[0085] Planting substrates may refer to various physical mediums used for plant growth. These may include traditional soil, potting soil, black soil, mulch, or volcanic grave—each with distinct properties for plant cultivation. Compost may also be added to soil to improve its fertility and structure. Peat moss may be used to help moisture retention, while perlite and vermiculite are utilized to enhance soil aeration and drainage. Coconut coir, an alternative to peat moss possesses excellent water retention and aeration qualities. Sand, sometimes mixed with other substrates, is used to improve drainage, especially in cultivating plants like succulents and cacti. Ultimately, planting substrate may include one or more of these substrates either utilized individually or in combination with one another.

[0086] In an aspect of the present disclosure, the dibber (e.g., dibber **129** or **429**) includes a plurality of fins (see, e.g., fins **130** or **430**), extending from the dibber's sidewall (see, e.g., FIGS. **1A**, **4A**, **4B**, **6A**, **10A**, and **10B**). The fins are configured to remove material from the hole formed by the dibber. The dibbers described herein may also include a number of measurement notches,

marks, or projections configured to indicate a depth of a hole being formed by the dibber. The fin(s) may each include at least one orifice (see, e.g., orifice **451** in FIGS. **10A** and **10B**) configured to receive a rope, string, or the like, or alternatively the orifice (e.g., **451**) may be configured to receive a plant hook therein.

[0087] In an aspect of the present disclosure, the dibber (e.g., dibber **129** or **429**) includes a hand blocking member (see, e.g., hand blocking member **452** in FIGS. **10A** and **10B**) configured to allow a user to apply increased pressure to the vegetable support member by pushing against the hand blocking member. The hose receiving orifice (e.g., **439**) described herein may be formed in the hand blocking member (e.g., **452**).

[0088] The fins may be configured to facilitate the removal of material from a hole as the dibber is used. Each fin is designed to effectively scoop or push soil away, clearing the hole as it's being created. This feature is particularly useful when working with compact or heavy soils, where removing excavated material can be challenging. The fins enhance the efficiency of the dibber, making the task of hole preparation for planting both quicker and easier. The fins on the dibber's sidewall aid in the practical aspect of digging and contribute to a more uniform and precise hole.

[0089] In an aspect of the present disclosure, the base member, dibber, or both defines a plurality of measurement markings (see, e.g., markings **131**, **431**, and **531** in FIGS. **1A**, **3**, and **8**) configured to indicate a depth of insertion into soil. Each of the markings may be formed as an indent, protrusion, or surface marking, and may include a numeric indicator of depth that is similarly formed.

[0090] The measurement markings on the base member or dibber of the vegetable support assembly may include metric units such as centimeters and millimeters, which are widely recognized and used globally. Alternatively, the base member may utilize imperial system units such as inches. These units provide precise and easily understandable measurements for gardeners. Centimeters, millimeters, and inches offer the granularity needed for accurate depth measurement, essential for seeding plants at specific depths or ensuring uniformity in transplanting.

[0091] In an aspect of the present disclosure, the vegetable support assembly includes at least one threaded bolt (see, e.g., bolts **132** and **133** in FIG. **1A**) configured to be threaded into at least one bore (see, e.g., bores **134** and **135** in FIG. **1A**) extending into the at least one first aperture (see, e.g., apertures **103**, **104**, and **105** in FIG. **1A**), allowing the vegetable support member to be removably couplable to the vertical support member. A similar threaded bolt may be received in orifice **305** (see, e.g., FIG. **7**).

[0092] The threaded bolt may be designed to be threaded into at least one bore that extends into the first aperture of the vegetable support member. The inclusion of this threaded bolt system allows for the vegetable support member to be removably coupled to the vertical support member. This design provides flexibility and convenience in the assembly and disassembly process, enabling easy adjustments, maintenance, or storage of the apparatus. The removable nature of the coupling also allows for customization according to specific gardening needs or for adapting to different stages of plant growth.

[0093] In an aspect of the present disclosure, the vegetable support member includes at least one projection extending downwards from the bottom surface of the base member (see, e.g., projections **136**, **137**, **236**, **336**, and **536** in FIGS. **1B**, **6B**, **6C**, and **11**). Each projection is configured to connect with at least one string or rope. Each projection may be formed as a ring, loop, projection, or the like.

[0094] The downward projection may be designed to facilitate connection with at least one string or rope. The inclusion of this projection adds additional functionality to the apparatus, allowing for the tying or anchoring of the support structure to additional stabilizing elements. This can be particularly useful in outdoor garden settings where wind or uneven terrain might affect the stability of the support. By enabling the attachment of strings or ropes, the vegetable support member can be more securely anchored, providing enhanced support for the vegetables it holds. This feature not only increases the apparatus's versatility in various gardening situations but also

contributes to the reliability of the support system.

[0095] The vegetable support apparatus may be constructed from an array of materials, including plastic, rubber, wood, metal, bamboo, fiberglass, and/or composite materials. Plastics utilized may include high-density polyethylene, polyvinyl chloride, or other lightweight, durable plastics that are resilient to weather, chemicals, and rot. Metals utilized may include aluminum, stainless steel, or coated steel. Woods utilized may include either natural wood or treated woods such as cedar, redwood, or pressure-treated pine, which are capable of naturally resisting rot and pests. Composite materials may include wood fibers and recycled plastics.

[0096] In use, a series of vegetable support apparatuses may be utilized in a series along the same vertical support member. Each support apparatus may be configured to support vegetables from the same or different plants along the same vertical support member.

[0097] The vegetable support apparatus may be affixed to the top-end portion of the vertical support member and be readily detached by a user to access the vegetable support member's multifunctional features.

[0098] Referring particularly to FIGS. **8** to **13**, the vegetable support members **401** and **501** includes a hose support bracket (see, e.g., bracket **437** in FIG. **13** formed in bottom surface **407** of base member **406**) arranged at the distal end portion of the base member (see, e.g., base members **408** of vegetable support member **401** and **508** of vegetable support member **501**). A hose receiving orifice (see, e.g., orifice **438** in FIG. **13**) is defined in the first sidewall (see, e.g., sidewall **402** of vegetable support member **401** and sidewall **502** of vegetable support member **501**).

[0099] In an aspect of the present disclosure, a second hose receiving orifice (see, e.g., orifice **439**) is defined in the dibber. The hose support bracket **437** may be “C” or “U” shaped. The hose support bracket **437** is configured to hold the distal end portion **442** of the hose **440** therein.

[0100] The hose support bracket **437**, and the hose receiving orifices **438** and **439** are arranged to be aligned with each other to secure the hose **440**, such as for watering a lawn, vegetables, or plants. Orifices **438** and **439** may each define a closed circular orifice configured to circumferentially surround the hose **440**. Alternatively, the orifices **438** and/or **439** may define U-shaped openings configured to pass hose **440** through upper portions thereof. The orifices **438** and **439** may be dimensioned to snugly fit against the lower and side portions of hose **440** to hold the hose **440** therein.

[0101] Referring particularly to FIG. **13**, the hose **440** is configured to extend from the hose support bracket **437** and through the hose receiving orifices **438** and **439**. The hose **440** may include an adapter, such as a step down adapter configured to reduce a standard garden hose down to a smaller hose size, such as a ¼ inch hose size. The hose **440** may include a misting end attached thereto. The hose **440** may also include a shutoff valve connected between the proximal and distal ends of the hose **440** that can be utilized to shut off the spraying of water locally without the need to turn off a connected garden hose. The sprayed mist facilitated by the misting adapter of the hose **440** may be employed to mist plants, or to mist a user.

[0102] In an aspect of the present disclosure, a nozzle **441** is supported at the distal end **442** of the hose **440** and a hose connecting assembly **443** configured to connect the hose **440** with a source of water is arranged at a proximal end **444** of the hose **440**.

[0103] It will be understood that various modifications may be made to the aspects and features disclosed herein. Therefore, the above description should not be construed as limiting, but merely as exemplifications of various aspects and features. Those skilled in the art will envision other modifications within the scope and spirit of the claims appended thereto.

## Claims

1. A vegetable support assembly, comprising: a vertical support member; a vegetable support member configured to be arranged along the vertical support member, wherein the vegetable

support member includes: a first sidewall, wherein the first sidewall defines at least one first aperture configured to receive the vertical support member therein to secure the vegetable support member to the vertical support member; a base member extending from the first sidewall, wherein the base member defines a bottom surface defining a curved shape, and wherein the base member defines a distal end portion facing away from the first sidewall, wherein the distal end portion of the base member defines a curved shape facing away from the first sidewall; at least one second aperture defined in the bottom surface of the base member, wherein the at least one second aperture is configured to drain fluid through the bottom surface of the base member, wherein the at least one second aperture defines a projecting sidewall extending downward from the bottom surface of the base member, wherein the projecting sidewall is configured to shear thorns from a stem when the stem is pulled upwardly through the at least one second aperture; at least one first cradle defined by the base member, wherein the at least one first cradle is configured to support a first vegetable therein; at least one second cradle defined by the base member, wherein the at least one second cradle is configured to support a second vegetable there; and at least one second sidewall extending orthogonally from the base member and extending from the first sidewall, wherein the at least one second sidewall is configured to at least partially separate the at least one first cradle from the at least one second cradle.

2. The vegetable support assembly of claim 1, wherein the first sidewall defines a plurality of first apertures, wherein each first aperture of the plurality of first apertures is configured to receive the vertical support member therein.

3. (canceled)

4. (canceled)

5. The vegetable support assembly of claim 1, wherein the at least one second aperture includes a plurality of second apertures, wherein the second apertures of the plurality of second apertures define different diameters from each other.

6. (canceled)

7. The vegetable support assembly of claim 6, further including a downwardly angled recess formed in the base member, wherein the downwardly angled recess is configured to direct water into the at least one second aperture.

8. The vegetable support assembly of claim 1, further including at least one cutout or notch defined in at least one side of the base member, wherein the at least one cutout or notch is configured to support a plant hook.

9. The vegetable support assembly of claim 1, further including at least one cutting edge defined in at least one side of the base member.

10. The vegetable support assembly of claim 9, wherein the at least one cutting edge includes a plurality of teeth defining a serrated edge.

11. The vegetable support assembly of claim 1, further including at least one handle extending from the first sidewall, wherein the vegetable support member is configured to operate as a shovel by holding the handle.

12. The vegetable support assembly of claim 11, wherein the distal end portion of the base member defines at least one distal-facing notch, wherein the at least one distal-facing notch is configured to securely grip a root.

13. The vegetable support assembly of claim 11, further including: a threaded bore defined in the at least one handle; and a dibber configured to be removably coupled with the threaded bore of the handle, wherein the dibber is configured to form a hole.

14. The vegetable support assembly of claim 13, wherein the dibber includes a plurality of fins extending from a sidewall thereof, wherein the fins of the plurality of fins are configured to remove material from the hole.

15. The vegetable support assembly of claim 14, wherein at least one of the base member or the dibber defines a plurality of measurement markings configured to indicate a depth of insertion into

soil.

**16.** The vegetable support assembly of claim 1, further including at least one threaded bolt configured to be threaded into at least one threaded bore extending into the at least one first aperture to removably couple the vegetable support member with the vertical support member.

**17.** The vegetable support assembly of claim 1, further including at least one projection extending downward from the bottom surface of the base member, wherein the at least one projection is configured to connect with at least one string or rope.

**18.** The vegetable support assembly of claim 1, further including: at least one handle extending from the first sidewall, wherein the vegetable support member is configured to operate as a shovel by holding the handle; and a threaded bore defined in the at least one handle, wherein the threaded bore is configured to removably receive and support at least one accessory product.

**19.** A vegetable support member, comprising: a first sidewall, wherein the first sidewall defines at least one first aperture configured to receive a vertical support member therein to secure the vegetable support member to the vertical support member; a base member extending from the first sidewall, wherein the base member defines a bottom surface defining a curved shape, and wherein the base member defines a distal end portion facing away from the first sidewall, wherein the distal end portion of the base member defines a curved shape facing away from the first sidewall; at least one second aperture defined in the bottom surface of the base member, wherein the at least one second aperture is configured to drain fluid through the bottom surface of the base member, wherein the at least one second aperture defines a projecting sidewall extending downward from the bottom surface of the base member, wherein the projecting sidewall is configured to shear thorns from a stem when the stem is pulled upwardly through the at least one second aperture; at least one first cradle defined by the base member, wherein the at least one first cradle is configured to support a first vegetable therein; at least one second cradle defined by the base member, wherein the at least one second cradle is configured to support a second vegetable there; and at least one second sidewall extending orthogonally from the base member and extending from the first sidewall, wherein the at least one second sidewall is configured to at least partially separate the at least one first cradle from the at least one second cradle.

**20.** The vegetable support member of claim 19, further including: a hose support bracket arranged at the distal end portion of the base member; a hose receiving orifice defined in the first sidewall; at least one handle extending from the first sidewall, wherein the vegetable support member is configured to operate as a shovel by holding the handle; a threaded bore defined in the at least one handle; a dibber configured to be removably coupled with the threaded bore of the handle, wherein the dibber is configured to form a hole; a second hose receiving orifice defined in the dibber; a hose configured to extend from the hose support bracket and through the hose receiving orifice and the second hose receiving orifice; a nozzle supported at a distal end of the hose; and a hose connecting assembly configured to connect the hose with a source of water.

**21.** The vegetable support assembly of claim 1, wherein at least a portion of the vegetable support member is formed from polypropylene.

**22.** The vegetable support assembly of claim 1, wherein the at least one first cradle and at least one second cradle each define a concave shape configured to retain a vegetable therein.

**23.** The vegetable support assembly of claim 19, wherein at least a portion of the vegetable support member is formed from polypropylene.

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