

Plant life, business and theology

Living in fellowship with plants

*John Bloomer asks for a more appreciative view of plants, which were considered by ancient philosophers as the lowest form of life but provide humanity with essential life-giving benefit. John traces the development of plant theology from **Dominion**, where plants are solely for human use, through **Stewardship**, where humans care for plant life, to **Fellowship**, where plants and humans are seen as fellow creatures. Finally, John proposes a **sacramental ethos** which reconciles our human need to care for plants as fellow creatures with our human need to cultivate and eat living plants to survive.*

Agribusiness: the business of agricultural plants

Fundamentally, agribusiness is the business of agricultural plants. Agribusiness spans commercial farming and crop production; the accumulation and international trade of commodity crops (such as wheat, rice, maize, and oilseeds); the supply chains for speciality crops such as fresh fruit and vegetables; and the research, development and supply of products and services to farmers, such as seeds, plant protection products (agrochemicals) and crop

nutrition (fertilisers). The coronavirus pandemic, climate volatility and the war in the Ukraine (a major agricultural production area) have demonstrated the importance and vulnerability of our food supply chain. We need agriculture and agribusiness to underpin food supply that is environmentally, societally, and economically sustainable.

However, the practice of intensive high-input plant-based agriculture has rightfully been challenged when demands on the environment as against economic drivers become out of balance, and when the pursuit of short-term financial gains results in

the degradation of ecosystems and biodiversity, which include the soil and water on which plant life depends. Equally, new technologies developed by agribusiness, such as genetic modification (transgenic plants/GM crops) and now genome-edited crops, as well as alternative approaches such as organic crop production and regenerative agriculture, have been – and continue to be – actively debated within society. Consumer acceptance of GM crops has been problematic in Europe, and consumer acceptance of genome-edited crops is unclear as their introduction is only now beginning.



**Wheatfield in Ukraine
burning after shelling**
Photo: AP



Antioxidants from Dark Chocolate
Cacao plant in San Diego
 Photo: San Diego Zoo

Plants are truly amazing. They are the predominant form of life on our planet, representing approximately 80% of the global biomass compared to 0.4% for animals and less than 0.01% for humans.¹ Photosynthetic plants create their own food, producing carbohydrates from carbon dioxide and water, and producing proteins using nitrogen and phosphorus-containing nutrients in the soil. As a by-product of photosynthesis, they produce oxygen and maintain the oxygen-rich atmosphere that humans need to survive. Many plants also produce the richly coloured and health-protecting antioxidants in fruits, red wine, and dark chocolate. Human beings and other animals need to eat other living things to survive. The carbohydrates, proteins and antioxidants produced by plants form the basis of our diet. It is fair to say that animal and human life on earth is impossible without plants, and equally that plant life is less reliant on humans – plants having existed without human presence for over 400 million years.² Given their importance to human existence, a philosophical and theological understanding of plant life is needed, alongside a scientific understanding of these amazing creatures, to enable humans to have the most life-giving relationship with plants.

Underappreciated plants

Despite human dependence on plant life for their survival, humans suffer from the phenomenon of “plant blindness”. This is attributed to increased urban living and a reduced human exposure to nature.³ However, human underappreciation of plants is not simply a modern phenomenon. The classical philosophers regarded plants with ambivalence. Although Plato and Aristotle regarded plants as having a soul, plants were deemed the lowest in a hierarchy of souls, possessing a *nutritive* soul, associated with nourishment and reproduction, by virtue of which “all living things live”.⁴ Next in the hierarchy were animals, possessing a *nutritive* plus also a *sensitive* soul, marked by perception (using the five senses) and mobility. Humans are at the top of the hierarchy, possessing both a *nutritive* and a *sensitive* soul and also an *intellectual* soul, marked by reason and rational thought.⁵ Aristotle also applied this hierarchy to the food chain. Minerals from the earth are food for plants, which in turn are food for animals; both plants and animals are food for humans, suggesting that nature has made all living beings for the sake of humans.⁶

While the Bible abounds with references to agriculture, insights into plant life are modest. These are primarily found within Genesis. Plants are among the first created things but are set apart from animals and humans – growing, but less definitively living, with a more utilitarian purpose. Plants are created after the land on the third day, God commanding that the land “produce vegetation: seed-bearing plants and trees” (Gen 1.9,11-12). Therefore, *immobile* plants are more closely associated with the creation of the material earth than *mobile* living creatures, which were created on the fifth day (Gen 1.20,24). The divine purpose for plants is to be food for humankind and animals, and in the garden of Eden plants have a utilitarian role, being “pleasing to the eye and good for food” (Gen 1.30,26; 2.9). Plants are not brought as “living creatures” (Gen 2.19) to Adam for naming, which suggests that they have a more tenuous relationship with humans. Finally, the flood story suggests that plants have a lower status than animals as they are not among the living creatures preserved on the ark, except as food for the animals and humans (Gen 6.19,21). However, plants are resilient and survive, the arrival of an olive leaf signifying the re-emergence of land (Gen 8.11).

In contrast the Gospels contain a positive contemplation of plant life, with humans being urged to “consider how the lilies grow” and marvel at their embodied splendour (Luke 12.27, Matt 6.28–29).

Theologians such as Augustine and Aquinas are not particularly affirming of plant life. Augustine questions the Aristotelian concept of plants possessing a soul, suggesting that plants are a lesser form of life than animals or humans.⁷ Aquinas describes plants as barely living, almost inanimate: “life in plants is hidden, since they lack sense and local movement, by which the animate and the inanimate are chiefly discernible”.⁸ Aquinas also affirms the Aristotelian hierarchy within creation that became known as the “Great chain of being”, with humans clearly superior to plants.⁹

A more positive contemplative and scientific view of plants

More contemplative and mystical theologians, such as Basil the Great and Hildegard of Bingen, take a contrasting and more appreciative view of plants as living creatures. Basil describes plants as a providential gift from God for sustaining animal and human life, with the earth clothing itself “in a more brilliant robe, proud of its proper adornment and displaying the infinite variety of plants”.¹⁰ He professes

“insatiable curiosity” about plants, extolling their “countless qualities”.¹¹ Humans should contemplate plants and their diversity, revealing “great wisdom in small things”.¹² Equally, Hildegard contemplates creation, describing plants’ *viriditas* (viridity or green-ness), as a metaphor for youthful vigour, vitality, fecundity and growth. *Viriditas* reflects fundamental life-giving divine energy, expressed in a plant’s power to grow and re-grow. The divine purpose for plants is to provide food for humans and animals, providing their *viridity* directly and indirectly to humans. In *Scivias*, Hildegard observes the vital relationship of plants with the sun, long before the development of scientific understanding of the photosynthetic biochemistry that lies behind their green-ness: “O noblest *viriditas*, you are rooted in the sun”.¹³

Modern science has revealed how truly amazing plants are. Firstly, genetics and evolutionary biology reveal that plants, fungi, and animals/humans all evolved from a common ancestor, diverging approximately 1.6 billion years ago.¹⁴ Plants developed their unique photosynthetic capability very early, resulting in their distinctive difference from animals. This naturally led to their immobile mode of existence: plants do not need to move location to survive, as sunlight is freely available.¹⁵ By contrast, lacking photosynthesis, animals needed

to consume plants and other animals to survive. This required mobility, and the resulting development of more complex sensory and cognitive capabilities, ultimately leading to self-conscious, creative human beings.

While the ancients regarded plants as immobile, modern science reveals “plants are not static but living organisms with constantly increasing complexity in shape, architecture, and appearance”.¹⁶ Equally, their lack of senses has required re-evaluation. Plants sense and move in response to external stimuli, including light, gravity, touch and water availability.¹⁷ Plant bio-acoustic studies suggest plants detect and react to sound.¹⁸ Darwin noted that plant root tips act “like the brain of lower animals”¹⁹, and plant biology reveals ‘neural’ similarities between plant and animal cells and tissues, which enables their rapid co-ordinated response to environmental fluctuations.²⁰ However, while plants process and integrate data from at least 22 different signals, they lack animals’ highly developed brains and central nervous systems. In summary, modern scientific understanding of plant life suggests that plants are different, not deficient, in comparison with humans, occupying different branches on the evolutionary tree of life rather than a lower level in the Great Chain of Being.

“Consider how the lilies grow” (Luke 12.27)

Lily of the valley

Photo: Milwaukee Journal Sentinel



St Maximus the Confessor
(580–662)

Photo: Eighth Day Institute



A modern theological perspective on plants: dominion, to stewardship, to fellowship

Our deeper scientific understanding of plant life demands a new theological response. What should a modern theological perspective on plant life look like? How should it shape our human relationship with plants? How should it inform agribusiness as the business of agricultural plants?

A theological and cultural underappreciation of plant life has contributed to a human relationship with plants characterized by **dominion**, superiority, and utilitarianism. This exploitative relationship has undoubtedly contributed to the current ecological crisis. The clearing of European forests by Neolithic peoples to enable the agricultural production of food crops such as wheat and vegetables and, more recently, the destruction of South American rainforests to grow maize and soybeans, plus unsustainable agricultural practices in many parts of the world, have degraded the ecosystem's ability to capture and store carbon dioxide.²¹ Lynn White controversially suggested that Christianity "bears a huge burden of guilt" for the ecological crisis given its highly anthropocentric theology.²² White criticises the Christian anthropology of human dominion over nature, created to serve human purposes, expressed in Genesis 1.26. Equally, the story of Cain and Abel in Genesis 4.1–5 could be seen as a narrative of the human transition from nomadic pastoralism, living in balance with nature (Abel, who "kept

the flocks") towards settled agriculture, exploiting plant life for our benefit (Cain, who "worked the soil").

A more palatable theological relationship between humans and plants is often described as **stewardship**. Richard Bauckham shifts theological dialogue away from *human dominion over nature* to the *stewardship of creation*, balancing human responsibility to care for nature with our right to use nature for our benefit.²³ However, Bauckham explains that stewardship problematically still suggests human supremacy over nature, and a proprietorial relationship. He highlights the equality of all creatures before God, and maintains that the value and purpose of the non-human creation is for God's and their own sake", and that they honour God by being themselves, as God created them.²⁴

I propose a third and more fruitful relationship between humans and plants as **fellowship**. Fellowship suggests that humans should regard plants as fellow creatures, different from humans but loved equally by God who loves all that He creates, and who does not love differentially but infinitely. This theological perspective has its roots in patristic theology that underpins the Eastern Orthodox church, especially the spiritual and cosmic theology of St Maximus the Confessor.²⁵ This theology is described as *pantheistic*, meaning that whereas God remains transcendent, God is present in all that He creates and sustains in being, because all His creatures reflect an intention from God, expressed by Him in their *logos* – their essence, purpose and potential given by

God as their Creator. Maximus describes the divinely intended unity of all created things, a diversity of creatures held in unity in God, with all beings created as inter-dependent: "the one *Logos* is many *logoi* and the many are One".²⁶ Maximus proposes a distinctive Christian anthropology: humans in *imago Dei* have an active, creative role within creation, alongside God, as God's mediator and agent, with a vocation to help reconcile the creation within itself and to God "so that the many, though separated from one another in nature, might be drawn together into a unity as they converge around the one human nature".²⁷ However, Maximus highlights that humans are imperfect mediators, requiring Christ as the "perfect man" to be the perfect mediator of a divided creation, and the true redeemer of the world, bringing "all things in heaven and on earth together" (Eph 1.10).²⁸

A theological perspective of fellowship between humans and non-human creatures, including plants, also underpins the theology of St Francis who advocated a relationship between humans and other living creatures "based not on dominance and mastery of them, but on equality and love".²⁹ Similarly, the modern theologian Jürgen Moltmann urges humans to accumulate knowledge to participate in nature rather than dominate it, and to rediscover "traces of God in nature".³⁰

An ascetic and sacramental ethos

A relationship of fellowship between humans and plants requires us to live intentionally in harmony with

plant life, recognising that we depend on them more than they depend on us: a relationship of interdependent co-existence. To live in fellowship with plants requires humans to adopt an ethos that is both *ascetic* and *sacramental*. An *ascetic ethos* means adopting a mindset of “natural contemplation” advocated by Maximus, by which one is “able to contemplate the natural order and understand its inner structure”.³¹ Natural contemplation of plants yields a transformed and enlightened perception of plants and their ecosystems. Through natural contemplation, we come to understand the *logos* of plants, their essence. We see plants as beings in their own right, rather than for human use. We strive to see them more clearly as God sees them and to love them as God loves them. We understand plants as part of a diverse but infinitely connected and interdependent world, a harmonious web of the universe, in a state of balance and mutual symbiosis.

A *sacramental ethos* reconciles our human need to *care for plants as fellow creatures* with our human need to *cultivate and eat living plants to survive*. We should regard our production and consumption of plants as sacramental, doing so “knowingly, lovingly, skilfully, reverently”, rather than “ignorantly, greedily, clumsily, destructively”, a desecration.³² Furthermore, a sacramental ethos requires humans, in the image of God, to have a relationship with plants that is co-creative alongside God, transforming the world to shape it according to finite human need (not

infinite desire) for food, the only true desire for humans being for God. A sacramental ethos urges humans as mediators of creation to co-creatively transform plants to help them realise their God-given potential, as creatures in their own right. In so doing we act as “priests of creation”, offering transformed plants back to God in praise and thanksgiving as a priestly offering, like the elements transformed by human hands from wheat and grapes and offered back to God sacramentally in the Eucharist.³³ Humans should treat plants as neighbours, caring for them and meeting their needs, helping them to overcome disease and stress, and providing nutrition. In so doing, humans should maintain a loving reverence for plants as God’s creatures, as being different but not lesser, going beyond a possessive and preserving stewardship. Humans should always recognise their profound and existential dependence on plants, requiring an attitude of humility.

Making plants the answer

How does this more enlightened theological relationship with plant life help us as a society, and help agribusiness, to respond to the challenges we face today?

We face significant human-created global climate change and volatility, and need to increase global food production “by some 70 percent between 2005/07 and 2050”.³⁴ We need to feed a growing and increasingly affluent human population but with reduced available natural resources and depressed global agricultural productivity due to climate

change. Agriculture and agribusiness have been significant contributors to climate change, ecological degradation and loss of biodiversity, reflecting, at worst, a relationship of dominion over plant life, and, at best, a relationship to it of stewardship. However, faced with these challenges, we need to move beyond stewardship to a relationship of fellowship with plants, and *make plants the answer*. Plants turn ‘lemons into lemonade’ when they do what they are intended to do and fulfil their *logos* from God. They consume atmospheric carbon dioxide and convert it into human food as carbohydrate, and into carbon sequestered in the soil. Agriculture’s largest contribution to climate change is the production of methane by agricultural livestock, exacerbated by human over-consumption of meat as a protein source.³⁵ One solution is to increase production and consumption of plant proteins rather than meat. However, in so doing we need to ensure that plants receive their nutrition sustainably, as nitrogen oxide from excess nitrogenous fertiliser is agriculture’s second largest contribution to climate change. Also, phosphate fertiliser is a significant water pollutant, and phosphate rock is a finite natural resource. Genome editing technology could enable plants to use fertiliser more efficiently.

Technology is regarded as the primary means to enable humans to increase global food production in an environmentally sustainable way in the face of global climate change.³⁶ Plants are adapting to climatic shifts more slowly than the climate

Sustainable food production
Photo: Stray Dog Institute, USA




is changing, resulting in reduced crop yields. However, modern plant breeding and genome editing will help plants resist drought and heat stress better, thus realising their potential. Through technology, plant science and agribusiness will play a critical role in making plants the answer.

Profitable agribusiness companies can sustain the long-term investment and focus required for the development and delivery of plant-based technologies. However, if the right technologies are to be developed by plant science, commercialised by agribusiness companies, used by farmers, and

accepted by consumers, a change in perspective is needed in the human relationship with agricultural plants. Recent UK research shows that consumers may regard genome-edited foods as “safer and more natural” than GM foods, but have continued concerns about unknown risks and prioritisation of corporate profits over consumer benefits.³⁷ Behaviour within agribusiness companies that reflects fellowship with plants, rather than dominion over or stewardship of them, and an ethos that is both ascetic and sacramental, may help reassure consumers that profit is not the only motivation in the development of agricultural

technologies, and encourage consumer acceptance. Also, a relationship of fellowship with plants and their ecosystems will help guide human creativity away from unsustainable historic agricultural practices that have resulted in the degradation of ecosystems and biodiversity.

Plants are truly amazing, and a gift from God. As we struggle with climate change and strive for food security, living in a relationship of fellowship with plants will help to restrain our excesses, direct our God-given creativity, and help us to live in harmony with the plant world on which our survival depends. 

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