**DRY LAND AGRICULTURE:PROBLEMS, SOLUTION AND ITS MANAGEMENT**

**Nibedita Baral, Parth Sarthi Harichandan,Priti Bhuyan, Pujarani Behera, Rakesh Rajan Kishan , Rashmi Rekha Barik, Rasmi Ranjan Champati, Sanjeeb Bebarta, Saras Sundar Behera, Shophiya Patra,Priyanshu Chamupati, Priyashree Padhee**

 **C.V Raman Global university, Mahura, Janla, Odisha-752054**

**ABSTRACT**

Without the use of artificial irrigation systems, farmers in arid regions cultivate crops using just the rain that falls on the land. It's a form of subsistence farming practiced in arid regions where sugarcane, rice, and other water-dependent crops struggle to grow. Dry regions are characterized by low and erratic precipitation and a lack of irrigation systems. Agriculture in the desert is vital to the economy since it produces the bulk of the world's coarse grain crops, pulses, oilseeds, and raw cotton. Sorghum and other drought-resistant crops can reduce their transpiration rates or even cease growing completely in dry conditions, only to resume expansion once moisture levels improve. Drought crops thrive during times of the year when temperatures and rainfall are more moderate. Dry-adapted crops mature more fast and require more space than their humid-adapted counterparts.

**Keywords**: Dryland farming, agricultural practices, drought resistant crops.

**Introduction**

When it comes to harvesting food, the weather plays a major role in the success of dry land agriculture, also known as rain-fed agriculture. Dry land agriculture is typically practiced in water-scarce or irregular environments, and as a result faces a wide range of difficulties including drought, starvation, and soil degradation. Growers adapt to these challenges by borrowing technological methods and crop varieties that are more resilient to water failure and harsh environments. Among the methods used include conservation tillage, soil humidity management, and the use of drought-tolerant plant varieties. To further optimize water operation and improve sustainability, agro forestry, water harvesting, and community- based operation methods are incorporated. Adaptability to climate change becomes less crucial for agricultural success as dry land agriculture plays an increasingly important role in providing food security and supporting livelihoods in locations where irrigation may not be feasible.

Around 80 countries rely on dry land agriculture for their economies, and millions of people depend on it for survival. Low and unreliable flow in these areas sometimes results in water failure, which is a major hindrance to agricultural progress. Farmers and herders in these regions depend critically on rain-fed agriculture for food and income, therefore the ability to respond to climate change is of paramount importance.

 The efficient use of water storage is crucial to the success of dry land agriculture. Growers need to carefully arrange their cropping patterns and agricultural conditioning to make the most of the limited water available. Selecting crop varieties that are more resilient to failure is an important part of dry land agriculture. Creating plant varieties that can survive and even thrive during prolonged drought has required the use of factory parentage procedures. These drought-resistant plants have adaptations that allow them to preserve water, such as deep root systems that can access groundwater supplies or the ability to block stomata during hot ages, when transpiration is at a minimum.

 The practice of "conservation tillage" is also extremely important in dry-land farming. Conservation tillage, in contrast to conventional tillage, causes minimal soil disturbance and retains agricultural residues in the field. This method is effective at preventing soil drying out, reducing corrosion, and enhancing soil health. As crop residues build up on the soil's surface, they create a protective subcaste that helps water soak deeper into the ground after rain.

Growers employ conservation tillage practices including operating with high soil humidity to increase plant water vacuity. Mulching is a technique used to prevent water loss through evaporation and weed growth by covering the soil with organic materials such as straw or plastic. Mulching helps preserve crop growth during dry periods by preserving soil humidity levels.

In arid areas, rainwater harvesting is common practice for making the most of limited water supplies. Rainwater is collected and stored in this style for agrarian use during dry epochs. Various creative methods are used to collect rainwater, such as building miniature ponds or check heads, or installing rainwater collecting systems on roofs. The collected water can be used for a variety of applications, including residential consumption, watering livestock, and irrigation.

 Agro forestry systems, which incorporate trees and shrubs into agricultural landscapes, are also crucial to dry land farming. In the same way that windbreaks prevent water loss through evaporation, agroforestry shields crops from damaging winds and increases soil fertility. Trees used in agroforestry systems improve soil structure, increase biodiversity, and fix nitrogen. Adding fruit and nut trees to a farm can help farmers generate more revenue and reduce hunger.

 Many dryland areas currently use community-based water management strategies. In comparable setups, local communities collectively oversee the storage, distribution, and maintenance of water supplies. These locally based businesses promote self-determination and accountability, leading to more environmentally friendly methods of water management.

In addition to crop production, dryland farmers often engage in the rearing of livestock in order to complete their agricultural upbringing. Having access to beasts can provide a new source of revenue and act as a form of insurance against agricultural failures. Overgrazing, which can cause land decline and decreased plant cover, must be carefully considered while controlling beast in dry environments. To strike a balance between livestock needs and responsible land management, techniques like rotational grazing and the use of agricultural leftovers as animal food are put into practice.

Wind and water erosion can cause rich soil to be washed away, making soil decline a key issue in dryland farming. Terracing, figure furrowing, and planting cover crops are all examples of sustainable land management strategies that protect soil from erosion and boost its overall health. Additionally, gravestone bunds and vegetation barriers are mandated as soil conservation measures to reduce the amount of soil washed away during rainstorms.

Threat operations and climate adaption techniques are of paramount importance in light of the difficulties and dangers inherent in dryland agriculture. Crop diversification, where farmers plant a wide range of crops that require varying amounts of water and have various growth cycles, is a similar tactic. The risks associated with climatic variability can be mitigated and the agriculture system's ability to adapt in general can be strengthened through crop diversity. Agrarian extension services encourage climate-flexible agriculture practices as a means to deal with climatic unpredictability and lessen farmers' vulnerability. These methods are based on principles of climate-smart agriculture, which seek to boost output, improve adaptation, and cut down on emissions of greenhouse gases. Improved seed varieties, water-efficient irrigation methods, and climate-friendly soil management techniques are all examples of climate-smart activities. The use of ICT (information and communication technology) has also permeated dryland farming. ICT tools, such as rainfall prediction apps and remote sensing technology, provide farmers with up-to-the-minute information on precipitation and soil moisture levels. With this data in hand, farmers will be better able to make decisions about when to plant, when to water, and how to deal with any threats. Equally important in protecting farmers' income from the calamities brought on by climate change is the incorporation of climate-adaptive insurance. In the event of crop failure or product loss due to insufficient rainfall, farmers can seek compensation through climate-adaptive insurance policies. Growers can use this financial buffer to repair damage caused by excessive rainfall and carry on with crop conditioning. Continued efforts in exploration and development are necessary to make progress in dryland agriculture. New crop varieties, more efficient water management methods, and environmentally friendly farming techniques are just some of the novel outcomes that scientists and agriculturalists are working to perfect. When it comes to bolstering exploratory ventures and facilitating the dissemination of knowledge and chic techniques to growers, governments and multinational groups play a crucial role. The prosperity and longevity of dryland farming are profoundly influenced by government initiatives and support mechanisms. Governments may pave the way for more environmentally friendly and productive agricultural methods by mandating programs that reward farmers for using less water, conserving more soil, and adapting to varying climates. It is essential for the growth of the dryland agriculture industry to encourage women to work in the field. Agrarian conditioning relies heavily on the contributions of women, particularly in the areas of agricultural cultivation, livestock management, and water collecting. Inclusionary and long-term agricultural practices can be advanced by ensuring women have equal access to financial resources, knowledge, and decision-making authority. In conclusion, millions of people around the world rely on food from dryland agriculture for their survival. Dryland farmers use bright, novel approaches to increase productivity and adaptation in the face of water scarcity, climatic uncertainty, and soil decline. Some of the most important strategies advocated by proponents of dryland agriculture are the use of sustainable land management methods, the adoption of drought-resistant crop varieties, the implementation of water conservation measures, the use of agroforestry systems, and the use of community-based water management. With more research, funding, and policy backing, dryland agriculture has the potential to make substantial contributions to global food security, poverty reduction, and environmental conservation in dry and semiarid countries. To ensure the health of populations and ecosystems in these harsh environments, it is crucial to prioritize sustainable and climate- adaptable techniques, as the importance of dry land agriculture will only increase in the face of climate change.

India's dry land farming: -

The vast majority of India's farmland is subject to rainwater harvesting, a practice known variously as dryfarming or dryland agriculture. There are 143 million hectares of farmland in the country, 101 million of which are dependent on rain for cultivation. Crop production and farmers' economic situations are affected by changes in the frequency and intensity of rainfall in dryland areas. About 42% of the country's total food grain production comes from the dryland areas. Sorghum, pearlmillet, fingermillet, and other millets are all examples of coarse grains that can only be cultivated in arid regions. The country's focus has been on fostering the growth of dryland farming. Manjari, Solapur, Bijapur, Raichur, and Rohtak all have research initiatives aimed at increasing crop yields. The Central Research Institute for Dryland Agriculture (CRIDA) was founded in 1970 in Hyderabad as part of an all-India coordinated research initiative for dryland farming initiated by the Indian Council of Agricultural Research (ICAR) and funded by the Government of Canada.

Global dryland farming: -

It's possible to engage in dry farming in regions that receive substantial annual rainfall, typically during the winter. During the succeeding dry season, crops are grown utilizing methods that tap into the soil's retained moisture. Dry farming is done in a number of American states, including California, Colorado, Kansas, South Dakota, North Dakota, Montana, Nebraska, Oklahoma, Oregon, Washington, and Wyoming.

The Great Plains, the Palouse plateau of Eastern Washington, and other arid regions of North America such as the Southwestern United States and Mexico (see Agriculture in the Southwestern United States and Agriculture in the prehistoric Southwest) practice a form of dry farming known as "dryland farming," as do the Middle East, other grain-growing regions like the steppes of Eurasia and Argentina, and other places around the world. In the wake of Johann Cornies's influence, Ukrainian Mennonites brought dryland farming to southern Russia and Ukraine. It is extensively practiced across Australia with the exception of the Northern Territory.

THE DRYLAND PROBLEM AND HOW TO FIX IT: -

In dryland regions, farmers and locals must contend with a wide range of challenges that affect crop yields and economic security.

There are several distinct types of issues:-

• Issues with soil and water

• Rising sea levels and increased rainfall cause environmental changes

• The standard of the harvest

Issues with marketing dryland crops

• New approaches to transferring technologies

SOLID GROUND AND WETNESS PROBLEM:

In India's drylands, you'll find a wide variety of soil types. Laterite soil (alfisols) and clay soil (vertisols) are common in semiarid locations, whilst alluvial soils are common in river basins and desert soil (aridisols) is common in arid regions. The drought stress experienced by crops cultivated in laterite soil or alfisols is much higher than that experienced by crops produced in clay soil or vertisols, due to the latter's superior water-holding ability. Despite their low soil fertility, alluvial soils in arid regions are highly productive when watered.

 Since our country, India, is a monsoon country, rainfall plays a crucial role in determining the amount of water available to plants in dryland areas. Dryland farming is done without the use of any irrigation systems.The time it takes for crops to mature depends on the amount of moisture available. Due to their low moisture retention ability, the raised crops suffer whenever dry periods last for an extended period of time.

Due to insufficient soil moisture and the inability to utilize chemical fertilizers extensively, soil fertility is inadequate.

WATER LOGGING AND SALINITY CHANGES IN THE ENVIRONMENT:

Waterlogging and salinity issues are connected to soil degradation. The salinity of irrigation water has a significant effect on dryland crops.The most common causes of waterlogging and salinity are excessive irrigation, inadequate drainage, and incorrect irrigation of damaged soils. Salts accumulate on the soil's surface as a result of increased groundwater recharge and a higher water table. Reduced yields and the abandonment of irrigated land are direct consequences of these environmental changes.

**QUALITY OF CROP PRODUCE :**

The above mentioned problems of dryland agriculture put a big question mark on the quality of produced in dryland or arid conditions. Grain quality is the biggest issue in this area as it is of inferior quality due to underdevelopment. This results in less fodder production and farmers get less return on their produce from the market . This are few common problems of dryland agriculture.

Marketing problems of dryland produce :

Marketing is one of another problem faced in dryland agriculture areas . Farmers usually grow same crops. At crop maturity farmers want to market their produce as it is difficult to store it due to lack of storage facilities. This enables the traders and the middleman to have upper hand on them and thus agriculture produce is sold in difficulty at very low price . For this there is a option for the farmers to grow or cultivate different crops in a season or also the can use the money to built local level storage facilities, this can be a solution.

Innovation in technology transfer :

In order to achieve stability in dryland production ,an integration of long , medium and short term technologies are needed. The technologies developed must be in a watershed basis with people’s participation. Methodologies should be developed to initiate and encourage farmers participation in dryland agriculture. Participatory rural appraisal, group interaction of farmers to know more about farmer perception are to be utilized for the better understanding of a programme to make it beneficial for the dryland farmers . Grass root level extension is to be the prime criteria. Even though there is tremendous growth in agricultural research and education, a vast number of farmers are not been exposed to the improved technologies which are been developed. This results in reduction in the final output of the whole improvement of the drylands. Nongovernmental organization having linkages with farmers has been working well in many parts of Indian drylands. The self-help group approach is also gaining momentum in many states of India. All the approaches put together will help to develop the land for a sustainable production . The indigenous technical knowledge (ITKs) which are present in the farming communities on the various.

**PROBABLE SOLUTION :**

Methods used in agronomy:

In order to maximize yields, the major goal of dryland farming is to protect the soil and water supply. Agricultural methods are created with the specific land terrain in mind. Soil erosion is a big issue in the hilly landscape. Gullies form when erosion is particularly bad. The soils in these regions can be stabilized through grazing management and tree planting. Contour bundling and terracing are further methods of land development. The correct use of fertilizer is helpful on marginal soils with low fertility. However, due to the decreased moisture content of these areas, it is necessary to deeply put fertilizers. In preparation for the monsoon, drylands close to riverbeds will be managed. Since these normally arid regions experience flooding during specific times of the year. Due to a lack of irrigation, the crops planted in these locations need to be able to withstand drought stress in order to be harvested before the floods. Increased soil productivity in plain, dry-land tracts can be attained through a variety of agronomic practices, including: proper tillage; proper management of the time of sowing; proper management of fertilizer; proper selection of cropping systems suitable to the area, such as double cropping, alley cropping, the use of a better cropping pattern for specific locations; proper weed control and plant protection measures.

Technical methods:

Rainwater harvesting, runoff regulation, evaporation and seepage management, and other engineering strategies are all used to conserve soil and water. Contouring is done to retain water and avoid soil erosion on slopes between 3 and 5 percent. Water flow is slowed and allowed to soak into the soil thanks to the opening of ridges and slopes over the hillsides. When applied to regions with a slope of less than 1 percent, compartmental bunding ensures that water is distributed uniformly across the landscape. Soil moisture levels can be raised by employing water harvesting techniques. Farm ponds and check dams are being built as further deterrents. With today's advanced lab equipment, farmers could improve certain aspects of their craft. Farmers are more receptive to the improved ITKs. Mapping the drylands according to a variety of criteria and then incorporating that data into the development of area-based projects might also benefit from a deeper understanding of the technical aspects of remote sensing.

DRY-LAND OPTIMIZED AND VARIATION-RESISTANT CROPS

FRUIT HARVEST

1.Mango:Badami,Raspuri,Mallika

2.Sapota: Kalipathi, Cricket, and Other Games.

3.Singaporean specialty, jackfruit

4.Pomegranate:Ganesh,Kesari,Bhagya

5.Amla:Banarasi,Krishna,Cakaiya,Kanchan

6.Arabhavi-1 and Arabhavi-2 Jamoon

7.Cashew:Chinthamani

8.Guava:Sardhar,Alhabadsafed

Planting of Veggies

1.GKVK-1, Dhanaraj, PKM Bhagya, and Drumsticks

2.Suhasini, or curry leaves

CROPS OF FLOWERS

1.Micheliachampaca

HERBAL MEDICINE

1.Ashwagandha

2.Oleander

EXTRA DIVERSITIES

1.Rubber:R.R.I.M-700,R.R.I.M-600

2.Coffee:Robasta

Methods for Farming in Arid Regions

Absorption of Water, Improved

Avoid a Hardening of the Topsoil. The tendency of soils to pool at the surface and form a seal or crust against water intake is likely the biggest barrier to a high rate of absorption. Raindrops' pounding effect tends to disintegrate clods and spread the soil.

• Make a rough surface through tillage, which delays the clods' decomposition and the rain's ability to seal the soil. Prepare a finer, gentler substrate for little seeds than you would for larger ones when planting them.

Make a mulch out of the remaining stubble after harvesting. This kind of material not only slows the flow of water down the hill, but it also deflects raindrops so that they don't hit the ground. Slow Down the Water Drainage Problem. Water runoff and the erosion it causes must be prevented to the extent that waterlogging is not a concern.

A flat surface is ideal for farming.

• Plantings and tillings should be aligned perpendicular to the slope of the land. These bumps will prevent water from draining properly.

Bunds or contour strips (both of which will be elaborated upon below) should be installed at the rate of one per every two feet of vertical drop or one per every 250 feet of horizontal run.

Limiting Moisture Escape from the Ground

Evaporation from the soil is slowed. Each dirt grain is surrounded by a constant coating of water. The layer thins as water at the surface evaporates and is replaced by water brought up from below. Plants wilt when the water is too dilute for their roots to take up.

Shelter belts of trees or bushes can cut down on wind speeds and cast shadows, reducing evaporation by 10-30% and wind erosion by the same amount.

Putting down a layer of mulch can slow the wind and cool the soil.

• Shallow tilling can produce a 2- to 3-inch-thick earth mulch that is both porous enough to dry quickly and disconnected enough from the subsurface water to avoid further evaporation. Every time it rains, the interruption must be fixed by repeating the tillage process. This strategy is most practical in areas with infrequent but substantial rainfall. Lessening the Loss of Water Through Evaporation. Transpiration is the mechanism by which all plants take water from the earth and then lose it through their leaves and stems. The tendency of soils to pool at the surface and form a seal or crust against water intake is likely the biggest barrier to a high rate of absorption. Raindrops' pounding effect tends to disintegrate clods and spread the soil.

• By using tillage, you can make the ground uneven and cloddy, requiring more rain to smooth it out. Prepare a finer, gentler substrate for little seeds than you would for larger ones when planting them.

Make a mulch out of the remaining stubble after harvesting. This kind of material not only slows the flow of water down the hill, but it also deflects raindrops so that they don't hit the ground. Slow Down the Water Drainage Problem. When flooding is not an issue, water runoff and its consequences are less of a concern.

We must halt erosion immediately.

A flat surface is ideal for farming.

• Plantings and tillings should be aligned perpendicular to the slope of the land. These bumps will prevent water from draining properly.

The field should have bunds or contour strips to prevent soil erosion and water loss at the rate of two feet of vertical drop for every 250 feet of horizontal run. Each dirt grain is surrounded by a constant coating of water. The layer thins as water at the surface evaporates and is replaced by water brought up from below. Plants wilt when the water is too dilute for their roots to take up.

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The Use of Water-Conserving Mechanisms in Arid Regions for Agricultural Purposes

Introduction

Farmers in dry regions value water as a priceless treasure. In these regions, rainwater is extremely valuable because it is used mostly for farming. Arid regions have high temperatures, little precipitation (less than 100mm per FAO's definition), and a lack of vegetation. There is a rapid loss of available water due to evaporation and evapo-transpiration from water body structures and plants even after rain.

Extra care for the dry regions

Farmers in dry regions must take extra care at every stage of the cropping process, from planting to harvesting and beyond, to ensure their crops survive and provide them with food and income. While water is obviously crucial, unique infrastructure and methods are needed to preserve what rain falls as safely as possible.

Here are the 5 most practical and simple water conservation strategies for arid and semiarid agricultural setups.

1. Drip or micro-irrigation

This method of water conservation is the most practical and efficient for dry regions. This technique not only aids in preserving water resources, but also that of soil. This technique involves bringing water to plants from the soil's surface via a network of tubes that are perforated or otherwise equipped to cause damage. Drip irrigation provides a means of applying fertilizer by combining it with irrigation water. Drip irrigation has been shown to increase agricultural yield by 20-90% compared to standard irrigation methods, and it also reduces water usage by 50-70%. This is due to the fertilizer being delivered directly to the plants.

The ZAI Pits, Number Two

Zai Pits are another effective technique for water conservation in dry agricultural systems. Plants and trees benefit from having these holes dug around them to help retain moisture and water. Human hands are used to prepare the trenches. Small ridges are created around the pits using the excavated earth. This aids in collecting as much rainwater as possible. These are typically 10 inches deep, 3 feet broad, and 1 meter apart (25cm x 25cm holes). The goal is to collect rainwater for use in keeping the soil moist. It also helps boost soil fertility, which is especially useful in arid or dry areas, where crusty, deteriorated soil is frequent. The soil in these depressions is amended with compost, animal dung, crop scraps, and seedlings.

3.PLANTING SYSTEM USING RIPPER-FURROWS

In Africa, where water is scarce and agriculture is struggling, this method has gained widespread popularity. Farmers are use the Ripper-Furrower to create 2-foot-deep rips and furrows using this method. This building will collect rainwater for agricultural use. The first year of this system gets kicked off with the help of tractors. Farmers, however, will plant crops along these lines the next year using direct seeders pulled by animals. The seeds and compost/fertilizer are then planted in the rips.

When it rains, the water is directed to the plant's roots via the furrows. These methods provide the highest yields from drought-resistant sorghum, maize, and millet. Legume cropping rotation is recommended while using this method.

4. IRRIGATION SYSTEMS BELOW-GROUND

The initial investment is high, but the system quickly pays for itself. This method of farming works well in dry, parched regions. The plants' roots receive the water directly in this method. The benefits include reduced water use, no nutrients lost in runoff, fewer weeds since they aren't getting the water and nutrients they need, higher yields and production, no evaporation of water from the soil's surface, fewer hours spent on farm labor, uniform nutrient application, and best use in windy agricultural regions.

5. IRRIGATION THROUGH GATED PIPE

In this method, plastic or aluminum pipes carry water to farms and other agricultural areas. This method, which is widely used in the arid regions of the United States and Latin America, can conserve between 30 and 50 percent of water by minimizing leakage and evapotranspiration. It helps prevent soil erosion as well. The ability to selectively irrigate only certain furrows is a great benefit of this method, as the gates can be opened and closed as needed.

Irrigation Methods:

Irrigation at the surface:

Surface irrigation systems include the movement of water across the topography of farmland in order to moisten it and allow it to percolate into the soil.

When irrigation causes flooding or near flooding of the cultivated land, it is commonly referred to as flood irrigation, and surface irrigation can be further subdivided into furrow, border strip, and basin irrigation.

2. Irrigating specific areas:

•It's a setup in which water is pumped at a low pressure through a series of pipes in a planned pattern, and then a little discharge is applied to each plant or those close by.

There are many different types of irrigation techniques, but some of the most common ones are: drip irrigation, spray or micro sprinkler irrigation, and bubbler irrigation.

3. Watering Fabrics Beneath the Surface

•It's a system developed for underground watering in every kind of soil, from sandy desert to dense clay.

A drip line, an impermeable base layer (often polyethylene), a geotextile layer, and a thin impermeable layer sit atop a standard subsurface textile irrigation system.

•The geotextile transports water along the fabric up to 2 meters from the dripper, making the spacing of emitters in the drip pipe unnecessary in comparison to conventional drip irrigation.

Agricultural Land Management

In arid regions, where water is scarce, effective management of dryland agriculture is essential for achieving maximum output and sustainability. The term "droughtland agriculture" is used to describe farming techniques used in arid and semiarid regions, where precipitation is typically sporadic and inadequate for conventional farming methods.

The following are examples of management practices that are useful for dryland farming:

1.SOIL CONSERVATION: In dryland settings, where rainfall is often heavy but sporadic, soil erosion is a major problem. Soil moisture and nutrients can be preserved by the use of erosion control practices such contour plowing, terracing, and conservation tillage.

The success of dryland farming depends on careful water management. Mulching, drip irrigation, and rainwater collection are all ways to preserve water and ensure crops have access to it even in dry periods.

3.SELECTING CROPS: Go for plants that do well in dry climates. Maximizing crop yields in the face of restricted water resources is possible with the help of drought-resistant crop varieties and locally adapted plants.

Soil fertility can be increased and pest and disease pressures can be mitigated through the use of crop rotation and intercropping systems. Both the efficiency with which water is used and the output of crops are enhanced by these methods.

Soil structure and water retention are both enhanced by the incorporation of organic matter and compost. It increases soil fertility, which makes the ground more resistant to drought.

The addition of trees and shrubs to an agricultural environment can have several positive effects, including acting as windbreaks, providing shade, and enhancing the quality of the soil. Protecting crops from the elements and retaining soil moisture are two of the many benefits of using an agroforestry system.

Preserving native vegetation and implementing agro ecological techniques can boost biodiversity and increase the ecosystem's resilience, which brings us to point number seven: conservation.

Optimize resource consumption and output by implementing cutting-edge technology including drought-tolerant seeds, precision agriculture, and weather monitoring systems.

9.TRAINING AND EDUCATION: Educate and train farmers in dryland agricultural techniques that minimize environmental impact. Success in the long run depends on their ability to adapt to a changing climate and to apply cutting-edge methods.

10.GOVERNMENT SUPPORT AND POLICY: Advocate for policies that promote sustainable dryland agriculture, such as financing research into the development of drought-resistant crops and providing subsidies for water-efficient technologies.

Foster community involvement and cooperation between farmers, researchers, and extension services as part of goal 11.COMMUNITY ENGAGEMENT. Better methods for controlling dryland agriculture can be developed through the sharing of experiences and information.

CONCLUSION:

When it comes to increasing the productivity of dryland farming, there is no silver bullet. There needs to be a whole-systems approach to dryland farming. The land is especially at risk of additional degradation due to the ignorance of its occupants. Every arid setting

each unique, and any proposed solutions must take into account the specific challenges faced by its residents. Likewise, each area has its own set of soil, water, and other natural resource constraints that must be addressed in order to achieve optimal results. Green

Today's focus should be on sustaining agriculture's development, particularly in dryland areas, just as the 1960s' revolution was centered on cultivating superior varieties.

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