

In Maharashtra's Vidarbha and Marathwada regions, which are infamous for farmer suicides and consecutive droughts, implementation of the new drought manual may act as the last nail in the coffin of the farmers, who are already taking their own lives due to repeated crop failure, indebtedness and other factors.

Both natural and man-made factors might cause crop failures. Unpredictable weather conditions such as severe rainfalls can have adverse effects on crop production. Crop failure can simply be defined as a situation whereby all crops on a farm are lost. For the situation to be considered a crop failure, it has to be severe enough to adversely affect the farmers, consumers, and the economy. Causes of Crop Failure

Adverse Climatic Conditions Adverse climatic conditions will most probably top the list of the causes of crop failure. Adverse weather conditions include conditions that are too harsh for crops to survive, including extremely cold or extremely hot temperatures. These adverse weather conditions cause the crops to either dry up due to the scorching sun or fail to grow due to extremely cold conditions. Unpredictable Weather Conditions In the recent past, the climatic and weather conditions have been quite unpredictable. The sequence of the cultivation seasons has been interrupted by the constant change in weather conditions. For instance, an extended period of drought, prolonged wet season, flash floods, and complete change of season. The unpredictable weather conditions are as a result of global warming and other human activities.

Pests and Diseases There are a number of pests that affect the growth of crops in the fields. Some of these pests tend to be expensive to curb. For instance, most farmers in the developing world will watch their crops being consumed by pests such as armyworms, stalk borer, Black cutworm, and Asiatic Garden beetles simply because they do not have money to purchase pesticides. There are also some diseases that lead to crop failure. Some of these diseases include leaf blight, pythium, and southern rust. Pest and diseases, if not detected and dealt with early enough, may lead to a massive crop failure.

Poor Farming Practices Poor farming methods and techniques will also lead to crop failure. The poor farming methods are mostly as a result lack of knowledge of modern farming techniques and lack of funds to embrace the technology in farming. The farming methods that could possibly lead to crop failure include mono-cropping and failure to apply fertilizers and pesticides. Application and practice of the new and the superior farming methods go a long way in curbing and reducing crop failure.

Human Activities There are several human activities that affect the prosperity of crops in the fields. Application of harsh chemicals could lead to wilting of the crops. Other activities that could lead to crop failures include poor disposal of industrial waste products which may increase levels of the greenhouses gases in the atmosphere. The effects of these gases, such as sulfur dioxide, lead to fall of acid rain and blockage of leaf pores. These phenomena lead to crop wilting and the end result is crop failure.

Neglect By Farmers Though not considered a very a major cause of crop failure, neglect of crops in the fields by farmers could lead to the catastrophe. A farmer may plant their crops but fail to take good care of them, especially during their crucial stages of growth, such as flowering and fruiting. Abandoned crops will lead to minimal or no harvest at all. The shortage of food coupled with a high demand will definitely lead to higher food prices, which makes it quite expensive for many people to afford. If the situation persists, the population will definitely starve to death. The remaining populations, which may survive the pangs of hunger, end up being malnourished, due to lack of food or certain nutrients in their bodies. Crop failure does not only affect human beings, the animals too are affected. If the crops that are used as animal feeds also fail, for one reason or another, the animals will definitely be in danger of starvation.

Failure of Agro-based Industries Industries that use crops as their raw materials tend to be affected by crop failure. These industries include food processing industries and cloth manufacturing industries such as cotton. If the industries lack a consistent supply of raw materials, they are most likely to be closed down. If agro-based industries a closed down in a country, a number of people will lose their employment.

Crippling Of Economy Crop failure affects the economy from different angles. The effect is usually more adverse in the developing countries, where crop farming is mostly the backbone of the economy. If there is an insufficient supply of food, which is brought about by crop failure, in most instances, the government is usually forced to import food from countries with surplus food. Importing

food which farmers could have cultivated successfully leads to higher government expenditure. Loss of livestock in large numbers and shutting down of agro-based industries might also lead to the deterioration of the economy. The government will have no sources of revenue if the industries close down or are unable to generate more income. Overcoming Crop Failure Consequences of crop failure can be very frustrating to the government, consumers, and the farmers. It is necessary for a government and other concerned parties to be on the look out to reduce and curb crop failure. But how, one would ask, is crop failure reduced? First, the government and the farmers should invest in good farming methods such as the application of fertilizers and pesticides. Secondly, farmers in areas that have been adversely affected by changing weather conditions should be encouraged to cultivate crops that are adapted to such new weather condition. Thirdly, the governments of countries that have agriculture as their core economic activities should support the farmers and offer educational activities on how to reduce crop failure. Finally, it is necessary for the government and other stakeholders to invest in storage facilities. The storage facilities go a long way in preserving food crops. This page was last updated on December 5,

Chapter 2 : U.S. Farmers During the Great Depression - Farm Life - Farm Collector

Farmers have low crop productivity and over 55 percent of farms are dependent on rainfall. Deterioration in the quality of natural resources has affected the state's agricultural performance.

Drought is not uncommon in Australia, but this year the winter in eastern and southern Australia was drier than expected and did not provide much needed water for farm lands, leaving farmers battling crop failure, water shortages and very little food for their animals. Farmers have been given permission to shoot kangaroos that are competing with their livestock for sparse pastures. Drought turning the planet into a tinderbox

Australia: Drought turning the planet into a tinderbox Ethiopia: The end of nomadic life? Ethiopia has been suffering from ongoing drought conditions since , causing massive food shortages. The Ethiopian government said that some 8. Furthermore, the drought threatens to end traditional nomadic herding in the region. Drought turning the planet into a tinderbox

South Africa: Drought turning the planet into a tinderbox Europe: Not only have citizens been suffering the health consequences, which affect health care systems and labor productivity, crops have also been hit hard. Farmers across the continent fear bankruptcy due to poor crops and the EU Joint Research Center predicts "an increase in drought frequency and intensity in the future. Drought turning the planet into a tinderbox

Greece: Lost villages reappear as crops die Greece has been facing the dual problem of flash flooding in some regions and drought in others. Though they are watering, they say it is not enough to nourish their crops. Water levels are so low that previously submerged villages have begun to reappear in reservoirs across the country. Drought turning the planet into a tinderbox

Sweden: Worst drought since Sweden, which has not seen rain for over three months, is experiencing its worst drought since The situation threatens to cause severe crop losses costing farmers hundreds of thousands of euros. Sweden has been the site of massive forest fires and has even seen temperatures exceeding 30 degrees Celsius 86 degrees Fahrenheit in the Arctic Circle. Drought turning the planet into a tinderbox

UK: Drought turning the planet into a tinderbox India: Running out of water India has been plagued by water shortages due to rising population and mismanagement but also aggravated by drought, causing many areas of the country to run out of water. Bangalore was recently added to the list of global cities most likely to run out of drinking water. Drought turning the planet into a tinderbox

USA: Back to the Dust Bowl The US government said 29 percent of the country is currently experiencing drought, with conditions affecting some 75 million people. Kansas was one of the states crippled by the famous s Dust Bowl.

drought causes crop failure for farmer Mindy Ward | Aug 08, Editor's note: This is the first in a four-part series on the impact the drought has on farmers, ranchers and agribusinesses in northern Missouri.

H-1B spouse work permits: Public opinion to be taken on revocation proposal Mumbai: Successive droughts in the Marathwada region of Maharashtra has led to crop failures, creating acute rural distress. Farmer suicides in the region, comprising eight districts, have been rising—more than 1, farmer suicides were reported in , according to the figures compiled by district collectorates. In the first two months of itself, farmers have ended their lives. Though both the state and the central governments have announced relief measures, the situation has not changed much. The entire state cabinet has now decided to camp in the region from 4 to 6 March. The government outreach is aimed at getting first-hand experience of the intensity of the calamity and see if the measures announced so far were actually making an impact, said a spokesperson for chief minister Devendra Fadnavis. In October , the state government declared drought in more than 14, villages across Maharashtra. More than 10, of these villages are in Marathwada, North Maharashtra and Khandesh. The state has allocated more than Rs. Latur-based environmentalist and social activist Atul Deulgaonkar, however, scoffed at the proposed visit. Deulgaonkar, a member of the State Disaster Management Authority since , feels the drought in Marathwada is a bigger catastrophe than the earthquake in Yet, the Disaster Management Authority under Fadnavis has not met even once ever since he became the chief minister. The environmentalist said the drought demanded a response on three fronts—economic, scientific and technological, and social-political. On the scientific front, the government should have used technology such as satellite imagery to map and measure the impact of drought instead of wasting money on this political visit. There has not been any scientific effort to recycle water so that we could use the scarce water that is available here. The intensity of drought and rural distress in Maharashtra reflect in official statistics. According to the figures compiled by district collectorates, the state has reported 2, farm suicides since the beginning of The nearby Vidarbha region, where the intensity of drought is relatively mild, reported 1, suicides in and the aggregate number has already crossed 1, if two months of are included. Sun, Feb 28

Chapter 4 : Farmers' suicides in India - Wikipedia

Bhadohi, Uttar Pradesh | Anil Kumar Saroj The nonseasonal rain and droughts in Uttar Pradesh has damaged this year's crop. The government funds for the.

January 10, September 13, Panneerselvam announces a slew of relief measures, including waiver of land tax for farmers. Tamil Nadu, comprising 32 districts, will be declared drought affected in view of poor rainfall received during the northeast monsoon, Chief Minister O. Panneerselvam said on Tuesday. He announced a slew of relief measures, including waiver of land tax for farmers, to tackle drought situation in the State. As huge funds were required to protect people from drought, assistance from the Centre would be sought and a petition sent to the Centre at the earliest, Mr. Panneerselvam said in a statement. The measures to tackle drought include efforts to convert crop loans from cooperative banks and commercial banks into medium term loans. Cooperative banks have lent loans to the tune of Rs. A parched land at M. Kannanur village near Tiruchi makes this man look up in distress. A dry well at Siruganur village in Tiruchi district reflects the receding groundwater table across the State. Homage being paid to farmers, who allegedly committed suicide due to crop failure in the delta region, in Tiruchi recently. Areas with high groundwater levels also suffered badly this year due to poor rains. The dry Kalyana odai canal in Thanjavur bears testimony to the water crisis. A farmer sorts out chillies at his farm near Udthagamandalam. Due to demonetisation and excess produce, the prices of chillies have dropped sharply. Farmers stage a novel protest demanding supply of Cauvery water for irrigation in the delta region, in Tiruchi. The symbolic protest was meant to highlight the plight of Tamil Nadu farmers who could not take up samba cultivation owing to the intransigence of the Karnataka government, they said. Periasamy Minister for Forests C. Seenivasan inspects withered crops at Venkatachalapuram near Andipatti. Standing crops on 42, acres were affected owing to acute drought and failure of monsoon in Theni district. Palaniswami inspects the crop affected due to drought conditions in Salem district. Minister for Municipal Administration S. Veluman visits drought-affected areas in Coimbatore. Due to poor rainfall, 8, of 9, ha of maize, 1, of 2, ha of jowar, and 2, of 4, ha under pulses, had been affected. Aggrieved farmers with withered crops demand compensation of Rs. Farmers conveying their grievances to Agriculture Minister R. Duraikkannu in Puthupattinam, near Thanjavur. The State Cabinet will study the reports being prepared from all districts on drought and crop loss and would take a call on the measures to be adopted, including declaring certain pockets of the State drought-hit. Rajarathinam Relief for crop failure would be paid as per an order notified in this regard on October 27, Crop cutting experiment would be undertaken to ensure that farmers received insurance claims. A sum of Rs. The days of work for workers under the National Rural Employment Guarantee Scheme would be increased to days from the existing days to ensure livelihood for farmers affected by drought.

Chapter 5 : New drought manual may aggravate farm distress

Crop failure can simply be defined as a situation whereby all crops on a farm are lost. For the situation to be considered a crop failure, it has to be severe enough to adversely affect the farmers, consumers, and the economy.

Natural Disasters and Crop Protection Natural Disasters and Crop Protection Since Independence, India has borne the brunt of a large number of natural disasters like earthquakes, floods, drought and pest attacks. The main reason why India is susceptible to such disasters is because of its geographical location, weather and other physical features. The rising population of the country has driven farmers to settle in risky areas like flood plains, drought-prone areas, cyclone-prone areas and seismic zones. Natural disasters leading to a failure of crops play havoc with the economy of a country. Prices would rise to an extremely high level and the poor would starve. The best way to deal with such disasters is to be prepared for any eventuality. Keeping this in mind the government has developed contingency plans for farmers to tackle natural disasters before they strike. The government also provides compensation and other financial aid to farmers who are affected by natural disasters. This is done to encourage them to continue to invest in and produce agricultural commodities.

Flood The monsoons play a critical role in determining whether the harvest will be bountiful, average or poor in any given year. Excess rainfall leads to the overflowing of rivers, streams and lakes. This extra water fills low-lying fields and creates a flood situation. Floods destroy not only lives and property but also the entire crop production work carried out in the summer. Certain crops cannot bear excess water and they die leaving the farmer with a burden of debt. The National Commission on Floods has assessed the flood prone area in India to be around 12 per cent of the total area. When floods take place, both the Central and State Governments announce various plans to minimize the damage. Farmers are covered under schemes of the government. Activities of the government include provision of shelter, food supplies, clearing of debris and vocational training.

Drought Drought is said to have occurred when the principal monsoon fails or is deficient. It leads to crop failure due to insufficient irrigation, shortage of drinking water as well as undue hardship to the rural and urban community. There is no provision for declaration of drought by Government of India. Drought is declared for each State or part of the State by the State Governments. The important steps followed in India to control and manage drought are as follows:

Monitoring and early warning: The Indian Meteorology Department carries out the function of drought monitoring and forecasting. The agricultural department comes out with contingency plans to help farmers save their crops in case a drought like situation emerges. Here is the latest weather situation and crop advisory [External website that opens in a new window](#) prepared by the Indian Council of Agricultural Research [External website that opens in a new window](#). States monitor rainfall at mandal or tehsil levels and gather information from remote sensing agencies. If the information proves that drought has occurred then the State Government may declare a situation of drought. The Central Government then aides the financial and institutional processes to provide relief to the affected.

Monitoring and management of drought impacts: The Central Government provides financial assistance in accordance with relief norms laid by the Finance Commission. Assistance to the States is given in the form of Calamity Relief Fund, which is released to the States in two instalments, one in May and the other in October. This scheme aims at the best mix of all known pest control measures to keep the pest population below the economic threshold level or ETL. The scheme is per cent centrally sponsored. The Central Government also runs a scheme to monitor and control the locust population. The government has set up the National Plant Protection Training Institute [External website that opens in a new window](#) in Hyderabad to impart training in plant protection methods. This institute specializes in human resource development in plant protection technology by organizing long and short duration training courses on different aspects of plant protection. It also imparts training to foreign nationals sponsored through bilateral programmes with various agencies. More information on plant protection is available through pest management and plant protection schemes [External website that opens in a new window](#) of the Government.

Crop Insurance Crop production depends on the vagaries of weather and prevention of attacks from pests. As the weather is extremely hard to predict even for top professionals and pests can attack anytime, it helps to have some crop insurance. This insurance protects

you from most eventualities like floods, droughts, crop diseases and attacks by pests. Later on, a new body called the Agriculture Insurance Company of India External website that opens in a new window was formed to implement this scheme. It is a comprehensive scheme that provides insurance coverage and financial support to farmers in the event of failure of any of the notified crops as a result of natural calamities, pests and diseases. The scheme also encourages farmers to adopt progressive farming practices, high value inputs and modern technology. Other than the NAIS Scheme, the Agriculture Insurance Company of India is also involved in creating and executing other insurance schemes related to agriculture and allied subjects. Some such schemes are the Varsha Bima External website that opens in a new window , Sukha Suraksha Kavach External website that opens in a new window and Coffee Insurance External website that opens in a new window.

Chapter 6 : Agriculture | CRS

About Agriculture Pathway to Prosperity. Catholic Relief Services helps millions of smallholder farmers worldwide recover from natural disasters and civil strife, build resilient farming systems, and grow them into agro-enterprises that engage successfully with markets.

Photo by Nidhi Jamwal The Indian government is leaving no stone unturned to fight the occurrence of drought in the country. Photo by Nidhi Jamwal He is not wrong. So far, the Maharashtra government used to follow the paisewari system originally referred to as annewari for declaring a drought. If the paisewari system is applied, then at present 9, villages in Maharashtra, including 3, villages in Marathwada, have reported paisewari less than 50 paise. As per a recent news report , over talukas or administrative blocks had approached the state government to be declared drought hit, but only three talukas from Gondia district have made it to the category of moderate drought under the new criteria prescribed in the manual. Moderate drought is no longer eligible for relief funds from the Centre. For mild and moderate droughts, the states have to shell out their own funds. He is also the founder member of Shetkari Sanghatana and president of the Kisan Co-ordination Committee. It is a clear message from the government that farmers have to fend for themselves. Karnataka government, too, has raised objections to the implementation of strict parameters in the new drought manual. The drought-prone areas are confined primarily to the arid, semi-arid, and sub-humid regions of peninsular and western India. Some of the major drought years in the country were , , , , , and So far, the states had been following their own system of drought assessment and drought declaration. According to the new manual, for a drought to fall under the severe category and be eligible for central assistance, the state government has to prove severity in three out of the four main impact indicators. Relief funds disappear The drought manual is an offshoot of the November Manual for Drought Management of the central farm ministry. The drought indicators included in the manual were also part of the manual. But they were more like guidelines than mandatory parameters. The biggest difference between the and manuals is financial assistance for drought relief. The CRF envisaged the contribution of Central and the concerned state governments in the ratio of 3: The NCCF provided funds for natural calamities of severe nature when the balances available in the CRF were not adequate for meeting relief expenditures. Barren farmland and long walks to fetch drinking water is common in Marathwada. Photo by Nidhi Jamwal In sharp contrast, in the manual , the Central government has washed its hands off drought relief. Farmers and agriculture sector needs additional support from the government. Indicator issues Apart from the financial issues, there are indicator and parameter related problems with the new drought manual. Unlike the drought manual, the new manual does not take note of different types of droughts - meteorological deficiency of precipitation , hydrological deficiencies in surface and subsurface water supplies , and agricultural inadequate soil moisture leading to crop stress droughts. Unless this point is understood, farmers will continue to suffer even if seasonal rainfall is normal, warned Deoras. Joy raises strong objections to the parameter of sown area used in the new drought manual. Farmers tend to sow the crops in hope that rains will come. They even undertake second to third time sowing as they are desperate to have a good crop. And he was not alone. As per news reports, over 2. Meteorologists also point out problem with the definition of a dry spell in the manual. Factors like type of soil, type of crop, temperatures and vegetative state equally matter. Hence, even a dry spell of two weeks with above normal temperatures can hamper the crop growth and cause irreversible crop damage, he warned. Crop productivity is an important factor, but is missing from the manual. Such crops and water inequity is one of the reasons for droughts in Maharashtra. It fits well in the context of the new drought manual, which will further push farmers to the brink. Nidhi Jamwal is a journalist based in Mumbai.

Chapter 7 : Tamil Nadu to be declared drought-hit, says Chief Minister - The Hindu

Farmers in Australia, where a drought is drying out an area larger than Texas, are demanding more help than the government is offering.

This global weather phenomenon is creating warmer than average waters in the Pacific Ocean and affecting global climates. Across vast regions of Ethiopia, the belg spring rains, normally expected to start in February, mostly failed. The meher summer rains, which usually pour from June to September, started on time but were unevenly distributed and stopped earlier than expected. This has created widespread crop failure, as well as livestock deaths in many parts of the country. The lowlands of Southern Region, including Boreda where Nuru Ethiopia works, have been affected as well although they are outside the epicenter of the hardest hit areas. Ethiopia has a long history of episodic food insecurity and hunger because over centuries little has changed in the way farmers live and cultivate their land. I witnessed people dying in relief camps and service centers. I witnessed how people coped with such severe disaster in unprecedented ways. The country has better security, peace and early warning and preparedness systems. It is reasonably positioned to overcome the challenges of the drought more effectively now than ever before. The only way to help farmers households survive these expected waves of shocks is to build resilience through coping strategies. Farmers in rural Ethiopia employ a range of strategies to overcome the challenges of drought and chronic food shortage including but not limited to: Few of these strategies are sustainable over the long-term. Consuming less than the recommended amount of calories per day makes people weak and vulnerable to illnesses. If people are ill and weak, they will have less energy and time to work in farms, which in turn makes them less productive. A migrant worker usually gets hired as a day laborer in commercial farms or construction projects or works menial jobs in cities. Availability of such jobs is not guaranteed and, when available, they usually pay a minimum rate that does not even cover the daily expenses of the worker. Selling off productive assets may provide few months of subsistence, but it may take years of saving to replace. All these undesirable coping strategies make farmers less productive and displace them from their farms during the most crucial times of the farming seasons. Unsustainable coping strategies followed by shocks are common traps that keep farmers in extreme poverty not just for years, but for generations. Nuru supports cooperatives to promote community member access to financial services, learning of financial management skills and engagement in income generating activities. Nuru believes that a farmer who saves small amounts on a regular basis will have better resources to tap into during difficult times. Nuru promotes community members to build social capital, networks and support structures. Such support enables farmers to work together to a common end. A farmer who learns new financial management skills and engages in additional income generating activities will be less vulnerable to weather-related shocks. Nuru is working to build resilient communities, which can overcome episodic hunger and vulnerability to economic shocks in a sustainable way. Nuru Ethiopia is assessing the effect of the drought on farmers in Boreda, Southern Ethiopia. Based on the outcome of the assessment, it will provide support through its Agriculture and Financial Inclusion Programs.

Chapter 8 : Seeds of change: Mali farmers fight drought with hybrid crops - Mali | ReliefWeb

Farmers from frequent and severe drought affected areas believed that drought was one of the major causes of suicidal tendencies of farmers due to less income and indebtedness with growing interest. Due to reduced income and social status farmers become mentally depressed, which ultimately ends in suicide.

This phase of development is especially important to long-term sustainability, and it requires proper training, education, and awareness by users of issues such as water conservation, water quality, loss management and drought management. Other water management issues In addition to water demand management, some other important programmes have addressed a variety of issues. Waste water disposal and pollution monitoring and control This includes finding effective ways of managing and disposing of sewage sludge and hazardous wastes so that they do not contaminate water resources. Mitigation measures are required to prevent groundwater pollution from pit latrines and irrigation i. Reuse of water and reclamation from water waste can supplement present water use effectively. These types of measures are mainly applicable in high-density population areas where the cost of such actions can be shared. Optimization of existing infrastructure Optimization of infrastructure use is a further area of potential water saving. Operating rules of dams and bulk supply infrastructure need to be reviewed regularly. In some South African schemes, water losses are percent because of leaking, illegal connections, poor maintenance of infrastructure, and ineffective operation and billing systems. Integrated water and soil resource management All the basin countries are involved in various regional and national programmes related to the prevention of soil degradation, e. These efforts call for national action plans and programmes to be developed, which will require the responsible departments to liaise with international and regional institutions, national and provincial government departments, universities, NGOs, the private sector and land users. For example, South Africa has initiated a national action programme to combat desertification. The National Botanical Institute assessed the current status of desertification Hoffman and Todd, and the DEAT is drawing up a strategy document on the combating of desertification. Resource conservation programmes and research The LandCare programme GOSA-DOA, is a community-based and government-supported land management programme that offers financial support and technical assistance to community groups in order to help them to deal with land degradation and productivity problems Plate 2. Each country has research programmes dealing with improved methods of preventing the deterioration of soil as an agricultural resource. Extension efforts are channelled towards testing and implementing these results in cooperation with farmers who could influence communities. Plate 2 Water harvesting techniques for improving land productivity J. Other research initiatives Research is also being conducted to stimulate rainfall through so-called cloud seeding. One of the pilot projects is taking place near Tzaneen, South Africa. Preliminary results indicate that an increase in rainfall of up to 60 percent can be achieved, depending on locality, seeding method and cloud type. Such measures may have some potential for drought relief and may be cost-effective in reducing the variability in rainfall Steffens and Fletcher, To summarize water management issues, the National Conservation Strategy of Botswana GOB, highlights the increasing pressures on water resources in Botswana and sets overall development and conservation goals: Crop production and diversification programmes In addition to drought response programmes and water and soil management, there is also general recognition that arable agriculture may not be sustainable in arid and semi-arid areas. Measures are needed to promote crop production systems that are sustainable and include risk reduction and enhance the ability to cope with periodic drought. Extensive work has been conducted in Zimbabwe along these lines and this is used here to illustrate important practices and issues. The basic objective of SDARMP is to mobilize communities into organizational structures capable of identifying, planning and managing income generating projects. Crop improvement efforts have focused largely on early maturity as a drought escape mechanism and on high yield. A number of high-yielding and early-maturing open and self-pollinated varieties of small grains, cowpeas and groundnuts are now available. The ox-drawn mouldboard plough is the most innovative land preparation technology ever introduced to replace the hand hoe in the smallholder-farming sector. In addition to reaching greater soil depths, it ensures considerable

inversion of the soil and is faster than the hand hoe. Although readily available, this technology is linked closely to cattle ownership. Ox-drawn cultivators were introduced for secondary land preparation weed control. However, as is the case with the mould-board plough, these are beyond the reach of many farmers, especially the non-cattle owners who rely on the hand hoe. Row planting and monocropping. Farmers are encouraged to row plant and monocrop instead of broadcasting their seed. This facilitates the mechanization of operations such as planting and weeding and enables farmers to better manipulate plant densities in the event of a drought. Reasonable crop yields cannot be obtained on the granitic sandy soils without regular applications of inorganic fertilizer, manure or lime. Based on extensive on-station and on-farm research, the application of NPK basal fertilizer and nitrogen top-dressing in combination with some 40 tonnes of cattle manure once every four years is recommended for the major cereal crops grown in the basin. A number of moisture conservation practices such as ridge, tied ridge and furrow planting have been designed, tested and promoted widely. These practices have resulted in increased crop yields owing to the harvesting and concentration of the available moisture in some years. The practices also tend to improve crop response to fertilizer although this has not been consistent on sandy soils. This approach involves minimum disturbance of the soil surface by using an ox-drawn ripper tine to open the planting furrow. It has been recommended as a soil, water and draught-power conservation strategy Plate 3. However, because of the open grazing regime in communal areas, little crop residue remains in the field as cattle eat it during the dry season. Furthermore, the roaming animals compact the soil thus rendering reduced tillage unattractive owing to poor water infiltration into the soil. The principal objective of the ALDEP was to assist small subsistence farmers to increase the production of basic foodgrains sorghum and maize, legumes and sunflower in order to achieve self-sufficiency at household and national levels, raise rural revenues and improve income distribution. The programme comprised the following components: About 40 farming households were assisted with ALDEP packages between and , and 45 percent of these were female-headed. Under the programme, farmers were encouraged to use improved farming practices such as row planting, water harvesting and soil moisture conservation techniques. In addition, demonstration farms have been established to promote the adoption of appropriate technology by farmers. In terms of crop production, ALDEP farmers have higher yields than non-aided farmers, despite constraints placed on the ALDEP by a weak extension service and disruptions during times of drought.

South Africa Alternative crops There is a widespread movement towards alternative crops that are better adapted than the traditional maize to harsh climate conditions and low inorganic fertilizer input. The LandCare movement is a vehicle for bringing about change. It promotes integrated farming, with crop rotation and fodder legumes, for example, to replace the much-valued maize stover for the overwintering of cattle stover remaining on the land is needed in conservation tillage. The movement puts a high premium on participatory learning and people orientation. The focus seems to remain on rendering maize production maize as the main crop, with or without intercropping with dry beans, soybeans or lupins sustainable, rather than promoting crops that are relatively unknown in South Africa, such as various millets and grain amaranth.

H. Smith, personal communication, There is much room for interaction and technology exchange with other SADC countries. Intercropping Intercropping is still very common on smallholder farms as a risk reduction strategy against the failure of a particular crop and because of to land pressure, as families try to maximize use of the land they have where rain is not strongly limiting, intercropping gives more crop per land area. The most common system is to intercrop cereals e. Another system uses pumpkins and watermelons. The intercrop is grown on a minor scale, just to ensure enough for home consumption. The farmers aim to produce in such a way that the cereal yield is not lowered compared with when the cereal is grown alone. Research has shown that apart from the complications of managing two crops on a piece of land, intercropping has the advantage of improving ground cover and hence prevents soil erosion which would otherwise be increased by wind in drought years. Legumes also increase soil friability and fertility. Intercropping will probably continue on smallholder farms, and therefore more research is required in this field. Extension Extension staff and representatives from research institutions and agricultural input companies e. Officers of the LandCare movement have found that up to fourfold increases in crop yield can be achieved with very modest increases in monetary inputs. The concept that they illustrate to farmers is one of doing a number of basic production

tasks a little better. These are, in decreasing order of importance: Steyn, personal communication, Rural engineering The ARC-Institute for Agricultural Engineering is currently implementing the rural engineering programme that forms part of their effort to assist resource-poor communities to farm more efficiently and improve their yields. The emphasis is on the development of infrastructure, equipment and machinery that is appropriate for use by smallholder farmers. The institute also offers practical training in the application of technologies. The agricultural engineering programmes are integrated with other disciplines. Appropriate technologies enhance the production efficiency of farmers, thus ensuring food security and ability to cope with disasters such as drought. Indigenous technologies Farmers in southern Africa have developed a series of crop management strategies that enable them to cope better with their harsh production environments. The effect of the available technologies on crop yields tends to vary from year to year largely owing to rainfall fluctuations. Crop diversification is included in order to reduce risks and spread labour input requirements. Farmers plant up to five or six different crops within a given growing season and although these crops are largely monocropped some limited intercropping is still practised, especially with low densities of melon, pumpkins or cowpeas. Use of traditional crop varieties. Farmers still predominantly plant the late-maturing and low-yielding local varieties of small grain cereals, cowpeas and groundnuts. These varieties guarantee farmers some yield as they are adapted to the low rainfall and poor soils found in the basin. Despite the fact that crop yields decrease with late planting, farmers stagger the planting of some key crops such as maize during the cropping season in order to reduce the risk of total crop failure in the event of a mid-season drought. Moreover, this enables farmers to stretch their other limited resources such as labour and animal draft power. Use of organic fertilizer sources. It is difficult to obtain reasonable crop yields from basin soils without adding organic or inorganic fertilizer. However, because of the high cost and the risks associated with its use in marginal rainfall environments, there is limited use of inorganic fertilizer in the basin, especially by the poorer farmers. Such farmers have resorted to the use of leaf litter and humus as the majority of them have no access to manure, as they do not own cattle. However, because of the widespread deforestation occurring in these areas, the amount of leaf litter available is rather limited. Consequently, crop yields and livelihoods of these farmers continue to be worse than those using inorganic fertilizer or those with access to cattle manure. Cultivation of bottomland areas. Farmers have traditionally produced crops such as rice and early maize in the vleis or wetland fringe areas as a food security measure. However, the increased number of people cultivating these fragile areas in an uncoordinated and haphazard manner is rendering the practice unsustainable. Use of natural pesticides. Farmers traditionally use plant species such as blackjack *Bidens pilosa*, marigold *Tagetes minuta* and chowa *Datura stramonium* instead of inorganic chemicals to control termites, aphids, cutworms and other insects. Animal production and health programmes As indicated in Chapter 3, the best-adapted land use in most of the basin is animal husbandry, utilizing extensive grazing on the natural grasslands. Therefore, animal production is a critical issue in any long-term drought mitigation strategy for the Limpopo River Basin. In addition to relief programmes to alleviate livestock mortalities and loss of livelihoods for the farmers, animal production must be incorporated into the integrated resource management strategies in terms of mixed farming systems, impacts on soil and water conservation and management, and national and regional livestock disease control programmes.

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Disaster Assistance Programs USDA offers a variety of programs and services to help communities, farmers, ranchers, and businesses that have been hard hit by Hurricanes Irma, Harvey, Maria and other natural disaster events.

A desolate farm in Dallas, S. A farm auction in Derby, Conn. By there was despair in many quarters, as illustrated by this ad for a company seeking door-to-door salesmen. A poster for a U. The Great Depression that caused so much trouble in the world during the s ended only with the boom caused by World War II. For American farmers however, the downturn began shortly after World War I ended, continuing mostly unabated for two decades. During the Great War, agricultural production was way down in the European countries where the fighting was taking place, demand for food was high and prices paid for grain rose dramatically. At the peak in , All during the war, Food Administrator Herbert Hoover exhorted farmers in this country to increase production. As the prices realized for their products rose, farmers began to borrow money to buy more acres and new machinery, especially farm tractors since labor costs were sky high. Then after the war, as a recovering Europe and Russia began to feed themselves and, in the case of Russia, even finding grain to export , the bottom dropped out. Even though grain prices were low because of world over-production, American farmers had to keep planting large acreages in the hope of getting enough cash to pay off debts. Wheat prices bobbed along at a few cents over a dollar for most of the s. The banks looked shaky and depositors wanted their money, making them shakier still, and in time many were forced to close. Factories and businesses got rid of large numbers of employees or closed down altogether. Desperate bankers called in their loans, but farmers had no money to pay them and foreclosures and bankruptcy sales became daily events. These sales sometimes brought out the best in neighbors, as in a bank foreclosure auction for the property of a family in Madison County, Neb. Some neighboring farmers showed up and when the auctioneer tried to get a bid on the first piece of machinery, someone bid 5 cents. The farmers crowding around the auctioneer prevented anyone else from bidding on that item and the auctioneer had no choice but to hammer it sold. Continue Reading Another auction tells of a proud farmer forced into a humiliating bankruptcy sale. The auctioneer started his pitch on a work mare and no one bid. Nevertheless, some , farms were lost between and through bankruptcy and foreclosure. Desperate times It got so bad that when the price of corn dropped to 5 or 10 cents a bushel â€” coal cost more â€” many corn farmers burned their corn for heat. A man tells of doing repair work for a farmer and being paid with pounds of potatoes. There was virtually no cash money available. Still, the farmer, especially if he could stay on his farm, was immeasurably better off than the unemployed town dweller. The farmer could raise his own vegetables and fruit and grind his corn for cornmeal. A few cows provided milk and butter, as well as beef, while hogs and chickens were available for meat and eggs. He and his family were lucky; about the only things they had to buy or barter for were flour, sugar and salt; pins and needles; and shoes, thread and maybe some cloth although many a farm kid went to school in a dress, shirt or even underpants made of flour sacks printed with a flowered pattern. Then, to add to the misery in the Midwest, in the heat started â€” and kept on and kept on â€” with central Nebraska suffering through more than 20 days of temperatures higher than degrees. All those acres that had been plowed up turned to dust and crops burnt up, and that was just the beginning. In the dust storms started. Cattle and crops and even people died; folks who had hung on finally gave up. The tragic story of the Dust Bowl is too much to tell here. My memories of those years are sketchy as I was pretty young born in , but I remember having very little cash. We always had enough to eat because Mom and Dad raised a large garden and Mom canned a lot. We butchered a cow and a couple of hogs every year, and had chickens for meat and eggs. My sister and I wore patched clothes to school, but we were much better off than many of our fellow students. Most everyone else around us was just as bad off, or worse. FC Sam Moore grew up on a farm in western Pennsylvania. He now lives in Salem, Ohio, and collects antique tractors, implements and related items. Contact Sam by e-mail at letstalkrustyiron att. This should show us how important the financial sector can be in a country. There is some great financial information on [http:](http://)