Scholar Publishing Group
Academic Journal of Agricultural Sciences
https://doi.org/10.38007/AJAS.2020.010201
ISSN 2789-8415 Vol. 1, Issue 2: 1-12

Different Farming Practices on Carbon Footprint in Rural Tourism Areas

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Keywords: Rural Tourism, Farming Practices, Carbon Footprint, Carbon Emissions, Life Cycle Assessment

Abstract: As global warming becomes more and more serious, the concept of carbon footprint is welcomed by researchers. In the research on the sustainable development of rural tourism area, carbon footprint analysis has been introduced, and various research results emerge one after another. The research aim is to reduce carbon emissions and realize the sustainable development of rural tourism area, but the effect is not ideal. This paper takes the corn field in a rural tourism area as the research object, selects six corn fields with the same adjacent area, and designs the field experiment by comparing different farming measures. The closed static chamber method was used to collect soil direct greenhouse gas emissions, and the life cycle assessment theory was used to calculate the overall carbon footprint. The total greenhouse gas emissions in corn fields with straw mulching, organic fertilizer application and surge irrigation were only 190.1kg CO2-eq ha-1YR-1 within 10 weeks, far lower than those under other agricultural measures. This shows that different farming practices have different carbon footprints, and scientific and green farming practices can reduce carbon emissions and promote the sustainable development of rural tourism.

1. Introduction

1.1. Background Significance

Because of its short travel schedule, strong participation and unique experience, rural tourism began to rise around the world and develop rapidly. It has made great contributions to increasing farmers' income, stimulating urban consumption and promoting the development of tourism, and has also brought indelible impact on the rural environment. Resource consumption and waste from increased human traffic, as well as crop farming to cater for tourism, have a direct and indirect impact on the region's carbon emissions.

Climate warming has become one of the most important environmental problems in the world and has brought about very serious consequences. Increasing greenhouse gas emissions are the main cause of global warming, and carbon footprint, as a new evaluation method, has become the focus of research. Agricultural production is an important emission source of greenhouse gases, and carbon emissions have also become a standard for rural tourism areas mainly engaged in agricultural production [1]. Different farming practices such as planting mode, irrigation mode, mulching mode and fertilization management will not only affect the changes of the regional ecosystem, but also directly affect the greenhouse gas emission in the region. In this paper, starting from the farming practices of rural tourism on agricultural products, the effects of different farming practices on the carbon footprint of the same crop are compared, and more scientific and green farming practices are sought to contribute to the sustainable development of the construction of rural tourism.

1.2. Related Work

At present, there are many researches on carbon footprint calculation and influencing factors, such as Guangwu C analyzed transboundary GHG emission transfer between five Australian cities and their trading partners, decomposed specific emission streams into major economic sectors, studied inter-city carbon footprint (CF) network, and revealed carbon emission responsibility levels between cities and regions [2]. It provides a reference for the calculation level of carbon footprint, but it mainly takes cities as the research object. The factors affecting urban carbon emissions are too complex, and the data selected for his research is too single. Zhang X Q research aims to evaluate the effects of different tillage systems in CFs greenhouse gas emissions, climate regulation value of ecosystem services (ES), to determine the ability of adapting to climate change, farming methods for system of winter wheat summer corn is grown in the north China plain (NCP), his experiment was established in 2008, It includes no-tillage residue (NT), rotary cultivator residue (RT), impregnation residue (ST) and ploughing residue (PT)[3]. This experiment used a large comparative analysis of the data, but the effect on the variable control of farming mode was not ideal. Li Z conducted a field experiment on soilair greenhouse gas emission in the recreational grassland, peanut field and corn field of lijiabawan reservoir in pengxi River, a tributary of the Yangtze River of the Three Gorges Project. The experimental plots in the descending area have the same land use history, they are adjacent in the horizontal direction, and the elevation range is very narrow, namely 167-169 meters, which ensures that they will be flooded by the reservoir for the same time. Meanwhile, unflooded grassland with the same land use history is selected as the control study [4]. His experiment is highly targeted, only analyzing the cultivated land in the area where the water level falls. Due to the significant difference in annual precipitation, the scientific nature of the experiment sample is greatly reduced.

1.3. Innovative Points in This Paper

In order to explore the influence factors of carbon footprint and promote the green development of rural tourism area, this paper innovatively analyzed from the perspective of farming practices. The corn fields in a certain rural tourism area were compared and divided into six areas, and the control variables were respectively used to analyze the differences in soil greenhouse gas emissions between straw mulching and plastic film mulching, organic fertilizer application and chemical fertilizer application alone, and surge irrigation and border irrigation. The data were collected once a week using the closed static box method, and the final analysis showed that the carbon emissions from corn straw mulching were less than those from plastic mulching, organic fertilizer application was more environmentally friendly than fertilizer application alone, and surge irrigation could save water and reduce carbon emissions better than border irrigation. Combined with life cycle theory analysis, we know that lower carbon emission means lower carbon footprint, which proves that adopting scientific, green and effective farming practices can reduce the carbon footprint of rural tourism area, thus accelerating its sustainable development process.

2. Analyze Farming Practices and Carbon Footprint

2.1. Sustainable Development of Rural Tourism

Broadly speaking, rural tourism is activity that relies on rural families in the suburbs to combine beautiful rural scenery with unique farm life and attract urban groups for vacation, sightseeing, entertainment and so on. In a narrow sense, it refers to "eating farm meals, living in farm houses, doing farm work and enjoying farm entertainment" [5].

(1)Types of rural tourism

Different local conditions give birth to different types of rural tourism, which are generally divided into four categories: Scenic rural tourism, Relying on the rural natural landscape, the unique architectural features and resort equipment add color to it, providing urban tourists with food, accommodation and entertainment projects, so that tourists can enjoy the nature and stay away from the hustle and bustle; Ethnic style rural tourism, with unique ethnic customs and special food, specialty, folk art performance as the main attraction, to attract domestic and foreign tourists to experience the exotic customs; Comprehensive leisure rural tourism, utilizing the local natural resources and ecological environment, mainly in the form of ecological plantations, agricultural sightseeing parks and resorts, is equipped with diversified entertainment facilities to bring tourists the pleasure of one-stop service; Sightseeing agriculture type rural tourism, Farmland, fruit forest, fish pond, vegetable garden, grassland, farmhouse and flower sea are set up in the manor, and on-site picking, planting, fishing and other services are provided, so that visitors can immerse themselves in rural life and enjoy the pleasure of farming and the beauty of nature .

(2)The characteristics of rural tourism

Be susceptible to the influence of the natural environment. The establishment of rural tourism area depends on the local geographical location, climate type and other unchangeable natural environment. Large-scale mechanized planting cannot be realized in mountainous areas of the basin, wheat and sorghum and other crops cannot be cultivated in tropical areas, and tropical fruits such as mango and pineapple cannot be cultivated on a large scale in the north. Moreover, the cultivation of most agricultural products has obvious seasonality, for example, rice and watermelon are harvested in the summer, and strawberries and bayberries are picked in the spring. Although modern technology can realize greenhouse planting, the high cost does not apply widely. When a mature rural tourism area is established, sudden natural disasters will still be devastating.

Take family as business unit mostly. The small rural tourism is operated by the family, which can effectively control the cost and ensure the maximum benefit. But this also has certain disadvantages, such as low level of specialization, location dispersion is not conducive to unified management, unable to reach a higher standard.

The consumer group is mainly urban residents. Because of the pressure of work and the fast pace of life, urban residents prefer to return to the natural environment in the countryside to feel the natural atmosphere. However, due to time and geographical constraints, most residents choose to travel short distances to save time and cost. This is also an important reason for the popularity of rural tourism.

Greater participation. Visitors can not only visit the rural scenery, but also participate in it. They can not only feel the hardships of the work process, but also exercise their hands-on ability in the work, and enjoy the peace and fun brought by the unique work in the countryside.

(3) The significance of developing rural tourism

Many successful examples of rural tourism show that the business model of rural tourism is optimizing the rural industrial chain and promoting agricultural segmentation and cooperation. Through the combination of primary industry and tertiary industry, the added value of agricultural products and agricultural labor increases. Rural tourism brings real benefits to farmers, establishes the relationship between urban and rural structure, meets the needs of urban population, and is an important booster for the integration of urban and rural economy and culture. At the same time, urban capital, technology and talent flow to the countryside, and the interaction between the countryside and the city is harmonious. This way of mutual flow, complementary interests and optimal resource allocation effectively promote the overall operation and improvement of the national economy. Therefore, rural tourism is an important means to improve farmers' economy and realize the sharing of urban and rural resources, and accelerate the urban-rural integration.

Surplus labor force did not play an important role in the reform and development of rural economy and even hindered the development of rural economy. With the development of rural tourism, these surplus labor can be fully utilized and employment pressure can also be alleviated. As a labor-intensive industry, agriculture invests relatively little in natural resources and fixed assets, and its main input is labor. According to the multiplier effect, one tourism employment opportunity will create three indirect employment opportunities [6]. Therefore, expanding the scale of rural tourism development can solve the problem of labor surplus to some extent.

For consumers, and now, the children basically living in the city, hardly ever seen the scenery of the village, also does not have the opportunity to experience life in the village, and parents more or less have experienced the work experience, so more and more parents is going to take children to rural tourism. Through the rural tourism, rural life to get the kids to experience life in the countryside, and gain insights and knowledge, provide a good place for family parent-child education and environment.

2.2. Common Farming Practices

(1) Mulching measures

Straw mulching is the general organic form of orchards in northern dry land. There are also other organic substances for mulching, such as agricultural and sideline products that can be decomposed and household waste. The advantages of straw mulching are as follows: water storage and moisture retention. Affected by surface mulching, surface outflow loss after rainfall and irrigation is less, and soil surface evaporation is greatly inhibited. The soil fertility can be improved through the decomposition and decomposition of surface organic materials to increase the content of soil organic matter and improve the physical and chemical characteristics of the soil. If the whole yard is covered with wheat straw with a thickness of 20cm, it is equivalent to 2000kg of high-quality organic fertilizer per mu. Diurnal and seasonal variations of soil temperature can gradually decrease, because soil moisture changes slowly and tends to be relatively stable after overburden, so the ground temperature of soil, especially the surface temperature, drops significantly [7]. But straw mulching is not suitable for all crops that need to be covered, and its labor cost is high.

Plastic mulching is an agricultural technology that spreads a film on the ground to promote the growth of crops. It can improve soil temperature, keep soil moisture sufficient and loose, improve soil fertility, enhance light and suppress weeds, and even promote early maturation of crops to increase income and yield. At present, plastic film is divided into colorless and colored, colorless plastic film is commonly used transparent plastic film, transmittance and thermal emissivity is higher. The colored plastic film has different functions according to the difference of color. For example, the opalescent plastic film is mainly used to suppress weeds. The green plastic film is mainly weeding, warming as a supplement; Black plastic film can be used for weeding and cooling, and can also be used for softening cultivation of melon and vegetable. Because of the infrared ray in its reflection, silver-gray plastic film has the effect of preventing aphids and diseases besides weeding. Moreover, the plastic film covering operation has been mechanized, which can save a lot of manpower and material resources. The film material can also be degradable and pollution-free, which is worth popularizing as a farming technology.

(2) Fertilization

Fertilization, as an important agricultural management practice, has a far-reaching and extensive influence on the carbon pool of farmland soil. At present, the most commonly used fertilizers are chemical fertilizers and organic fertilizers [8]. The use of organic fertilizers promotes the growth of the roots and topsides of crops, thus increasing the amount of root exudates and organic residues in soils that are an important source of organic carbon. In addition, organic fertilizers introduce a large number of carbon sources into farmland soil, improve the activities of soil microorganisms, help to maintain the balance of carbon input and emissions, and greatly increase the content of soil organic carbon. The return of organic materials to farmland is helpful to promote the total organic carbon content of agricultural land and increase the content of active organic carbon components. The combination of organic fertilizers and fertilizers greatly increases soil carbon content, improves the physical environment such as soil pores, and stimulates soil microbial carbon content more effectively than fertilizers. With the increase of the amount of organic fertilizer, although the total organic carbon content in the soil did not change significantly, the content of activated carbon in the soil increased significantly. This is because the background value of soil organic carbon content is high, the change is slow, response to the short-term and medium-term of farmland management practice is not very sensitive, microbial biomass carbon (MBC) and particulate organic carbon (POC), easy oxidation of organic carbon (ROOC) and other soil active organic carbon composition as early predictors of farmland management reaction has been widely used. Moreover, the input of organic fertilizer can improve soil fertility, increase crop yield, and have a far greater impact on the environment than chemical fertilizers.

(3) Irrigation

Different irrigation methods will affect the soil moisture status, soil moisture content after irrigation, soil moisture transport and nitrogen in the soil, and ultimately produce effects on crop growth. At present, common irrigation methods include drip irrigation, surface irrigation and surge irrigation.

Drip irrigation delivers water or nutrients needed for crop growth to the soil at the root of the crop uniformly and accurately through a emitter with a small flow. This irrigation method loses little evaporation, does not drain from the surface, does not cause deep infiltration, and does not damage the physical and chemical properties of the soil. It is characterized by less irrigation and short irrigation time. Water supply pressure requirements are low, can correctly adjust the water volume, no unnecessary waste, easy to implement mechanical management. Drip irrigation, in particular, can regulate the temperature, humidity and soil structure around crops. However, in the previous inter-row irrigation, there was a large amount of irrigation water. The soil surface remained wet for a long time, the ground temperature dropped rapidly, which was difficult to recover, and the humidity was too high, which was prone to crop diseases and pests [9].

Surface irrigation is the use of irrigation ditches or furrows for irrigation. So far, mulch is still the most widely used irrigation technique in the world. This irrigation method is closely related to the flatness of the land, so it is necessary to level the ground and level the foundation pit before surface irrigation. Waste water ditches, small uplands and lowlands provide convenient conditions for future irrigation, promote soil water conservation, fertilizer conservation and soil conservation. Border irrigation is a process in which water flows from head to tail under its own power, depending on topography, the texture of the soil, and the flatness of the ground. At present, the water supply and demand conflict is obvious. Border irrigation consumes a large amount of water, and the low evaporation efficiency and deep infiltration are more serious. This irrigation method needs to be further improved.

Wave surge irrigation is a surface irrigation method in which water is supplied intermittently to canals (beds) at certain time intervals and water is periodically pushed forward. During the two water supply periods, a tight layer is formed on the surface of the moist soil to effectively prevent the deep penetration of water flow, save irrigation water and improve the utilization efficiency of irrigation water. Compared with previous continuous irrigation, surge irrigation can effectively improve the uniformity of irrigation [10]. Pipe automatic irrigation is a semi-open pipe that achieves uniform water flow by inserting valves into the pipe evenly. By controlling the discharge time of water, the precision and uniformity of irrigation can be correctly controlled. If the use of automatic channel water quality conditions are not high, generally can use field river water and well water irrigation. Can realize automatic irrigation, simple operation, can reduce labor and time.

2.3. Agricultural Carbon Footprint

Carbon footprint (CF) is a direct or intermittent method to measure the greenhouse gas emissions accumulated in the life cycle of a specific activity or product. The carbon footprint of cultivated land is mainly divided into two types. One type is directly related to the increase of carbon emission, which is called direct carbon emission. It mainly includes the carbon emission caused by diesel fuel consumption of agricultural machinery and fertilizer application in agricultural production. The other type indirectly leads to the increase of carbon dioxide emissions, which is called indirect carbon emissions, mainly referring to the carbon emissions produced by pesticides and seeds in production, transportation and irrigation [11]. Agriculture is the most important production activity of human beings. The growth and management of cultivated crops also increase the emission of greenhouse gases, and agricultural activities are also one of the important sources of greenhouse gas emissions. According to the research results, the percentages of CO_2, CH_4 and N_2O from atmospheric agricultural activities are 20%, 70% and 90%, respectively.

(1) Influencing factors of agricultural carbon footprint

Chemical fertilizer is the main factor affecting carbon footprint, and the trend is increasing year by year. Although using chemical fertilizer can increase production, it also does great harm to the environment. Rational application of chemical fertilizer is the key to reduce carbon footprint. Crop types also have a certain impact on carbon footprint. For example, soybean is lower than rice, and choosing suitable crops can reduce carbon footprint. Irrigation also contributes to the carbon footprint. Moderate irrigation can meet the water needs of crops. Excess water can increase soil respiration, increasing soil carbon emissions. Choosing the right irrigation method can not only directly reduce the waste of water resources, but also reduce the carbon dioxide emissions of farmland. With the improvement of mechanization degree, the utilization of machinery in agricultural production activities has been widely popularized, and the efficiency of agricultural production has been improved. However, the carbon dioxide emission caused by fuel consumption of agricultural machinery on site will also affect the carbon footprint. This ratio, though small, cannot be ignored. Reducing the carbon footprint can be achieved by reducing tillage without tillage or by improving the efficiency of agricultural machinery.

(2) Measurement method of carbon footprint

Currently, there are three theories used to calculate carbon footprint: life cycle assessment theory

(LCA), input-output theory (IOA) and mixed life cycle assessment (IOA-LCA) [12]. LCA is suitable for studying greenhouse gas emissions from economic systems from both micro and meso perspectives. This approach views the assembly of the various parts of the agricultural production process as the life cycle of the entire system, beginning with the planting of the crop and ending with the harvest. The IOA divides entire crop growth systems into different branches that measure their energy consumption and carbon emissions. Comprehensive and complete, it does not require a large number of personnel and material resources to calculate, so it is relatively easy to study the carbon footprint of macro-scale economic environment. IOA-LCA combines the advantages and disadvantages of the two concepts and is suitable for macro and micro carbon footprint measurement, but the measurement method is relatively complex.

Correctly defining the starting and ending points of the whole process of agricultural production is the key to calculate the carbon emission of agricultural products. In the production of agricultural products, direct emissions include greenhouse gases from agricultural machinery in the process of farmland and irrigation, and N_2O emissions from agricultural nitrogen fertilizer. Indirect emissions are mainly caused by the production and transport of agricultural inputs such as pesticides.

3. Experiments of Carbon Footprint Measurement

3.1. Research Area and Objects

This experiment was carried out in the corn field of a rural tourism area. The overall climate of this area is characterized by sufficient sunshine, small temperature difference between day and night, and abundant precipitation, which is suitable for the growth of corn. The terrain is flat, the soil texture is loam, and the topsoil thickness is about 19cm.

Six adjacent corn fields with the same area are selected to ensure that they are similarly affected by the environment. The row spacing of maize was all 50cm and the plant spacing was 25cm. The same maize variety was used. At the same time, film mulching, fertilization and irrigation were the same.

3.2. Research Methods

(1) Experiment design

First, the six test plots were numbered and named successively as Zone A, B, C, D, E and F, and then grouped in pairs to control variables. The two areas AB were used to compare the influence of different mulching methods. In area A, corn straw mulching was used, while in area B, plastic film mulching was used. Then, organic fertilizer and surge irrigation were applied to both areas. The effects of different fertilization treatments were compared between two districts in CD. Organic fertilizer was applied in C district, while chemical fertilizer was applied in D district. Straw mulching and surge irrigation were used in both districts. In EF, the effects of different irrigation methods were compared between zone E with surge irrigation and zone F with border irrigation. Straw mulching and organic fertilizer application were used in both zones. After the planting of corn, the soil greenhouse gas CO_2 emissions of each region were collected and recorded by the closed static chamber method once a week until the 10th week. The total emissions of each region were calculated, and then the overall carbon footprint was calculated by LCA. The specific process is shown in Figure 1:

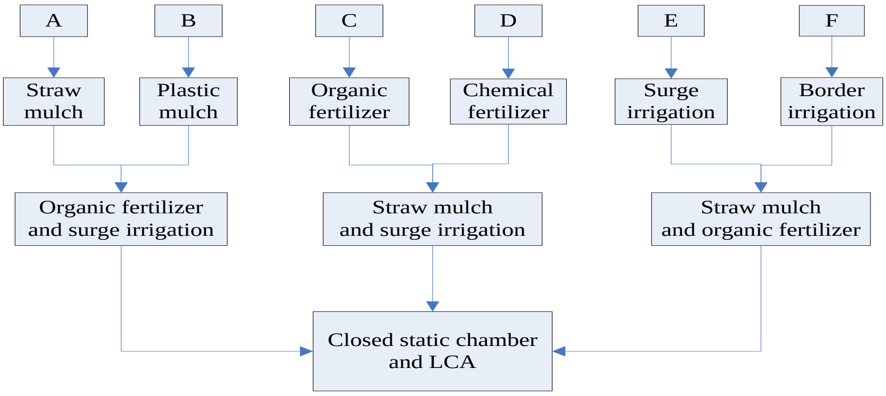

Figure 1. Flow chart of experiment

(2) Closed static chamber method

The closed static chamber method measures the emission fluxes of CO_2 and calculates the total emissions. The static box consists of two parts, the bottom part for the base, the upper part for the sampling box, with a three-way valve. During sampling, the lower edge of the sampling box is inserted into a trough in the base to form a 45×50×60 enclosed space in the box. In the experiment, a 50ml syringe was used to extract the gas from the sampling box, and the extracted gas was immediately transferred to a 0.03ml vacuum glass bottle sealed with butyl rubber sheet. The sampling time was from 9:00 a.m. to 10:00 a.m., and the gas was extracted for 0, 20, 40 minutes after the box was closed. Each area was measured once a week for 10 weeks to calculate the total direct carbon emissions from the soil during the growing period.

(3) Life cycle evaluation theory

This paper calculates the carbon footprint of the experimental site from the beginning of maize planting to the end of maize harvest, including the direct carbon emissions from the soil during maize growth, as well as the indirect carbon emissions from the production and transportation of fertilizers, pesticides and seeds, fuel, plastic film and irrigation. The calculation method is shown in Formula 1 and Formula 2:

$$Total\ Emissions = \sum_{i=1}^{n}(KI_i \times MN_i) + \omega(CO_2) \tag{1}$$

$$CF = Total\ emissions \div Crop\ yield \tag{2}$$

Total Emissions are the total emissions of greenhouse gases during the life cycle of corn; KI_i is the input to agriculture; MN_i is the greenhouse gas emission coefficient of agricultural inputs; and (CO_2) is the CO_2 directly emitted from the soil.

4. Discussion of the Difference in Carbon Footprint

4.1. Regional Carbon Footprint Distribution

(1) CO_2 emission in each district in 10 weeks

The CO_2 emission of soil in each test plot is collected from 9:00 to 10:00 in the morning of each week, and the corresponding conclusion can be obtained by comparing the data of each week with the final sum.

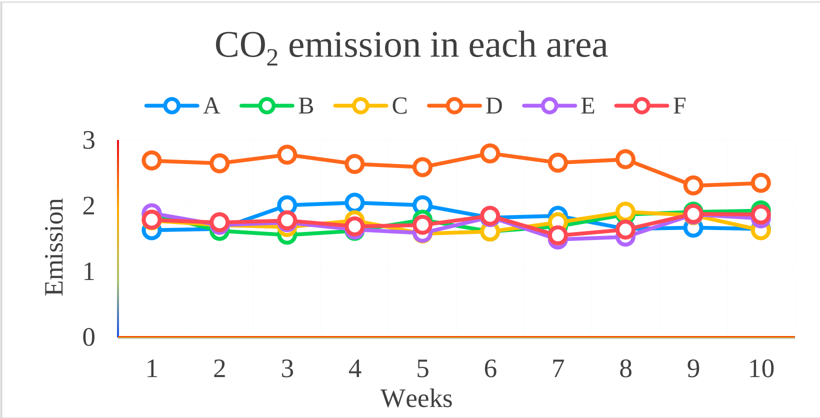

Figure 2. CO2 emission in each district

As can be seen from Figure 2, the emissions within ten weeks are relatively stable without great fluctuations. It can be seen that the CO_2 emission in area A of the corn field under straw cover is slightly higher than that in area B under plastic film cover, that in area C with organic fertilizer is much lower than that in Area D with chemical fertilizer alone, and that in area E with surge irrigation is slightly lower than that in area F with border irrigation. Among them, the highest weekly average emission was in Zone D with single fertilizer application, which may be due to the high nitrogen content in fertilizer, directly affecting the soil composition.

(2) Composition and total amount of each district's carbon footprint

The carbon footprint consists of greenhouse gas emissions from the production and transportation of raw materials, fuels, plastic film and irrigation electricity. Raw materials include seeds, fertilizers and pesticides, and fuels include emissions from the use of agricultural machinery for tillage, sowing, harvesting and mulching.

Table 1. Carbon footprint composition and total amount of each district

Category	A	B	C	D	E	F
Material production and transportation	23.89	23.89	23.89	66.87	23.89	23.89
Diesel	67.8	64.2	67.8	67.8	67.8	67.8
Plastic film	0	11.8	0	0	0	0
Electricity for irrigation	81.3	81.3	81.3	81.3	81.3	88.9
CO_2 emission	17.99	17.48	17.29	26.18	17.11	17.51
Total	190.98	199.34	190.28	242.15	190.1	198.1

As shown in Table 1, total regional emissions from straw mulching, organic fertilizer application, and surge irrigation, respectively, were lower than those from mulch, fertilizer application alone, and border irrigation, respectively. The three ACE zones were used as control zones, with the same farming practices and only slight differences in CO_2 emissions. The highest emissions were in zone D, where single fertilizer application, mulch and surge irrigation were used, leading to the conclusion that fertilizer use was the single factor affecting the carbon footprint. So must reasonable use fertilizer, reduce fertilizer dosage as far as possible, increase apply organic fertilizer.

4.2. Impacts of Different Mulch Methods on Carbon Footprint

Under different mulching methods, different carbon footprints will be produced. Area a will be covered with corn straw, which will directly increase the carbon emissions of the soil due to the rotten corn straw. Area B will be covered with plastic film, which will increase the environmental pollution.

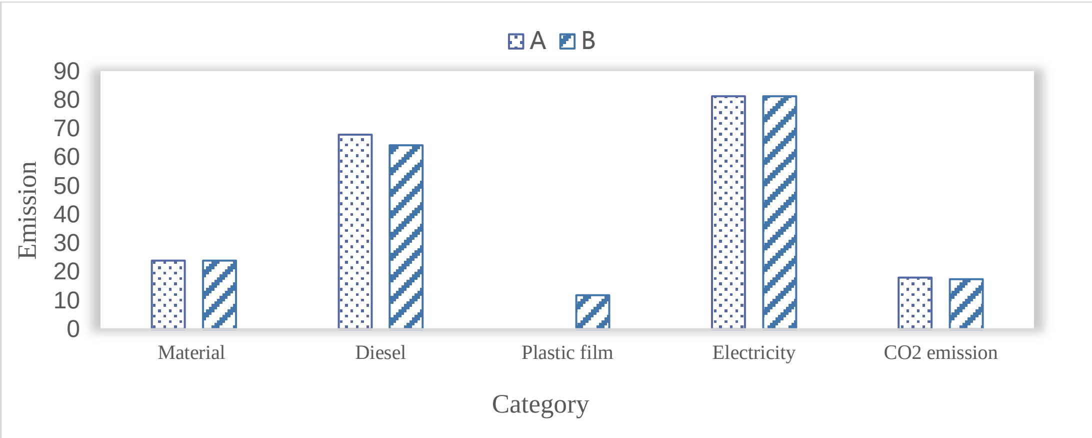

Figure 3. Comparison of carbon footprint between A and B

As shown in Figure 3, the carbon footprints of AB two areas are not different. Through detailed comparison, it can be found that straw mulching needs to consume higher physical force, so the emissions in the fuel part are higher than that in the plastic film mulching, and the plastic film pollution is too large. The final result is that straw mulching is better than that in the plastic film mulching.

4.3. Impacts of Different Fertilization Treatments on Carbon Footprint

The carbon footprints of the two regions are quite different, and the C region of increasing organic fertilizer is obviously better than the D region of only applying chemical fertilizer, so the environmental impact of carbon footprints can be well reduced by using chemical fertilizer and organic fertilizer in a scientific and appropriate way.

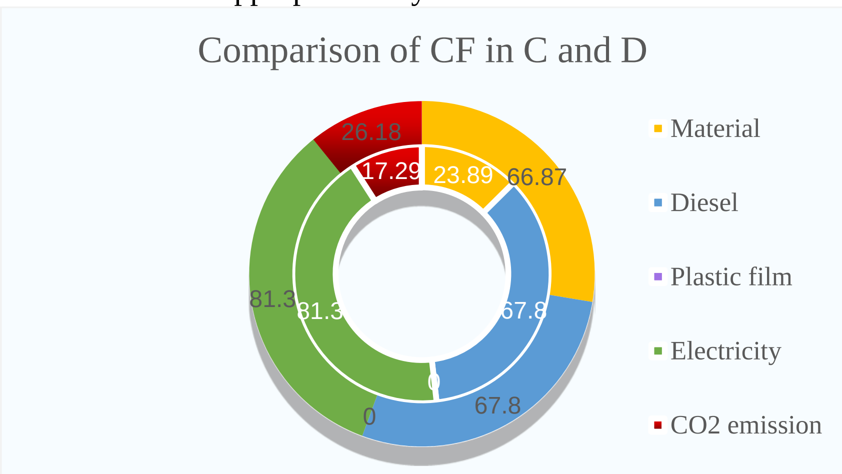

Figure 4. Comparison of carbon footprint between C and D

It can be seen from Figure 4 that the difference is mainly reflected in the direct emission of CO_2 and the production and transportation of materials. The nitrogen content in fertilizer is very high, and the direct use of fertilizer will lead to a straight-line increase of nitrogen content in soil, so there is a significant difference in the determination of CO_2 emissions. Moreover, the production and transportation of chemical fertilizer will also bring a lot of greenhouse gas emissions, while organic fertilizer will not have such a big impact.

4.4. Impacts of Different Irrigation Methods on Carbon Footprint

The carbon footprint difference between the two zones (C and D) is small, but surge irrigation is greener than border irrigation. Border irrigation increases carbon emissions and wastes more water, which is not suitable for irrigating large areas of crops in an era of scarce freshwater resources.

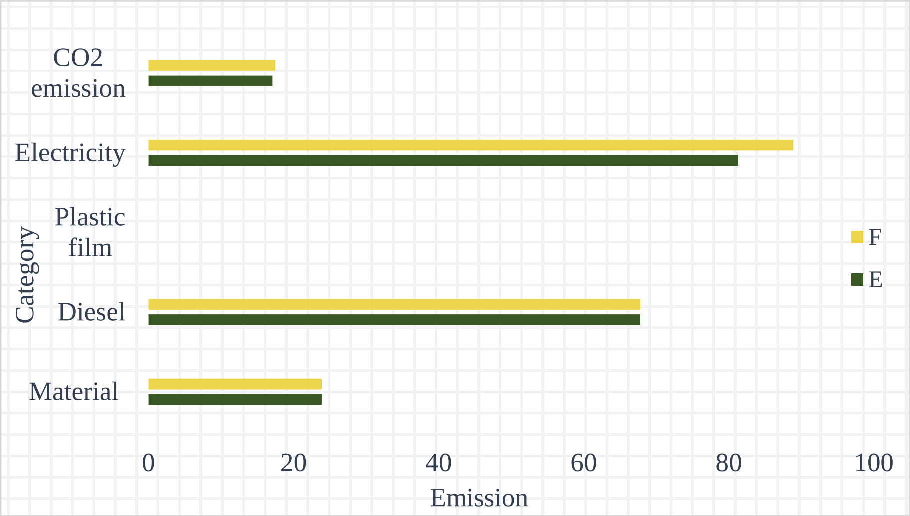

Figure 5. Comparison of carbon footprint between E and F

As can be seen from Figure 5, the difference between the two is reflected in the use of fuel. Surge irrigation can save irrigation time and amount, so less fuel will be consumed to meet the water demand of the same cornfield, and thus less carbon emissions will be generated.

5. Conclusion

Rural tourism in the urbanization level is increasing day by day of contemporary society is very popular, the reason is the shorter travel time to adapt to the fast pace of life, the moderate cost is in line with the mass consumption level, the unique experience can let everyone enjoy the tranquility of nature and the joy of labor. Coupled with the development of organic can raise farmers' income, consumption of state and government will vigorously support.

The environmental problems in tourist areas have always been the focus of attention of researchers and the government. Carbon footprint is the index of environmental quality in rural tourism area. In order to analyze the influencing factors of the carbon footprint in the rural tourism area, reduce the carbon emission from the source, protect the green hills and clear water in the rural tourism area, and promote sustainable development, this paper studies the agricultural measures for crops in the rural tourism area.

The results showed that different farming practices had different environmental impacts. Straw mulching was more environmentally friendly than mulch, chemical fertilizers produced far more environmental impacts than organic fertilizers, surge irrigation produced fewer greenhouse gases than furrow irrigation, and water conservation was greater. This also provides a reference for the development of many rural tourism areas, and scientific farming measures can reduce the carbon footprint.

Funding

This article is not supported by any foundation.

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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