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## FULL LENGTH ARTICLE

# The effect of agricultural extension services: Date farmers' case in Balochistan, Pakistan

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**Abstract** The Government of Pakistan has adopted a policy of providing agricultural extension services to promote agricultural production by disseminating appropriate knowledge and technologies to farmers. Consistent with this national policy, farmers in Balochistan have been provided with extension services by the provincial Department of Agriculture through their extension officials working with the District of Agricultural Extension Department. The required information was collected from a questionnaire survey covering 200 date palm farm households, group discussions, and surveys of key informants in the Panjgur District of Balochistan. Contrary to the policy of providing extension following the participatory approach, the extension in the study area was provided through the age-old top-down approach, with particular field-level extension officials not having much knowledge with regard to addressing date palm specific production problems. Of the farmers who had access to extension services, only half of them had made use of the knowledge/technology provided by extension officials. Overall, the small-scale farmers who used the extension services produced a better yield compared to that of the medium- and large-scale farmers. The linear regression model highlighted five factors that significantly influenced production. Those variables included the total number of date palm trees, the land preparation method recommended by extension officials, frequency of irrigation, expenditure on pesticides as recommended by extension officials, and farm-household income. Overall, farmers in the study area were found to have very poor access to extension services due to a combined effect of several factors. This was partly attributed to institutional constraints, including a very limited number of extension workers and their lack of knowledge on how to address date palm specific problems, such as the Dubas bug, which had infested approximately 90% of trees, and the shortage of irrigation water for around 90% of farmers, which caused a 65% decrease in date production. Conclusions are drawn based

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on the findings of the analysis, and resulting recommendations have been made for improving the extension services.

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## 1. Introduction

The provision of agricultural extension is made to enhance farmers' knowledge and skills toward improved yield. This section aims to find out the effects of available extension on date-palm yield in the study area. Therefore, the concern is whether the extension could achieve this explicit objective. However, the studies on factors influencing any crop yield indicated that besides extension, several other factors influence crop yield. Similarly, the infrequent use of advanced technologies and extension services is not only the farmers' unwillingness or objection to those services, but due to erratic and poor service delivery, insufficient number of extension officers and workers, and a lack of equipment. Poor transportation facilities and infrastructure (e.g. road system and office buildings), and poverty are understood to further aggravate the dissatisfaction of farmers with agricultural extension services (Qamar, 2005; World Bank, 2010; Ghosh, 2012). Even though extension services are offered to farmers, regardless of the size of their farm land, they thought them to be inadequate, because of not meeting their specific needs. Inadequacy of the provided services accounted for the reluctance of farmers to seek extension services (Umeta et al., 2011; Siddiqui and Mirani, 2012; Benjamin, 2013). Studies indicated that date palm farmers seemed to have been failed to effectively mitigate the date palm associated problems such as pest, mice bites and diseases and traditional farming (Siddique, 2006; PHDEB, 2008; Shah et al., 2010; El-Juhany, 2011; Al-Sharafat et al., 2012). According to Al-Sharafat et al. (2012), it is articulated that there was no difference in between olive farmers' production and income who received public extension services and other who did not avail services. Similarly, El-Juhany (2011), argued that due to pest, diseases and indeed the ineffective extension services provided to farmers the productivity of date palm trees has declined in Balochistan, Pakistan, by 37% (GoB, 2005; PHDEB, 2008) and 30% within a decade in Arab countries namely Iraq, Saudi Arabia, United Arab Emirates, Egypt, Tunisia, Algeria and Morocco. It happened mainly due to ineffective extension services i.e., untrained extension officials, lack of field demonstration, and neglecting the farmers' actual problems and the traditional farming (Qamar, 2005; World Bank, 2010; El-Juhany, 2011; Ghosh, 2012; Baloch and Thapa, 2014) (see Table 1).

Based on primary (in particular) and secondary sources, the study is an attempt to understand the effects of agricultural extension services provided by institutions in the study area with regard to the key "needs and problems" faced by the date farmers improving their date production and income. In the same manner, the key challenges, problems and "loopholes" identified by date farmers (smallholders in particular), extension workers and the policymakers would be significantly addressed in this study. More significantly, this study has eventually come up with constructive research-based findings, and empirical policy instruments that can reflect the achievements

in addressing the "effects of the extension services" with regard to the actual requirements and problems faced by the smallholder/resource-poor date farmers. As a result, it can contribute and enhance the knowledge of policymakers, development planners, practitioners, academics, general readers and other stakeholders.

## 2. Study area and methods of data collection

We selected the Panjgur District as our study site because it is among the leading date producing districts in Balochistan (PHDEB, 2008; GoB, 2008). Covering an area of 16,891 km<sup>2</sup>, with elevations ranging from 465 to 1776 m above the mean sea level (GoB, 2011), the district features dry climatic conditions, which are suitable for date cultivation. Although agricultural land accounts for only 4.6% of the district's land area, the economic mainstay for the majority of the population is livestock production and land cultivation, of which date palm is the major crop (Ghicki, 2011; GoB, 2011).

Historically, date palm was already grown in the area when Alexander the Great traveled through the Ketch Valley of Balochistan in the 4th century BC (IHS, 2011). Date palm is known as one of the most resilient species of trees and can survive for several months with very little water as well as in severe climatic conditions (Saleem et al., 2005; Baloch et al., 2006). This hardiness combined with the market demand for dates might be the main reason why the ancestors of the present-day farmers first started cultivating date palm in Balochistan. The climate of the area is also suitable for growing date palm. Starting in May and continuing for only 5 months until September, the Balochistan summer is relatively shorter than the winter, which starts in October and lasts for 7 months until April. June and July are the hottest months; November, December and January are the coldest. The average temperature in summer is usually below 32 °C, although the hottest months can sometimes peak at 38 °C. In the coldest months, the mean temperature drops below freezing point (GoB, 2005, 2011).

Panjgur district comprises 16 union councils, which are the lowest administrative units of Pakistan. From the union councils, Gramkan was randomly selected for the survey. Gramkan is home to almost 300 households (District Agriculture Extension Department) which grow date palm as their main source of income to meet their basic needs including food. Therefore, this union council was selected for the survey. Following a reconnaissance conducted in March 2012, 200 date palm farm households, accounting for two-thirds of all date palm farmers in the union council, were surveyed. As no secondary information existed on individual date palm farmers, the farm households to be surveyed were selected by using the random sampling method. Accordingly, two university-educated field assistants were chosen to go into the villages at certain intervals and select farm households to participate in the questionnaire survey. Prior to conducting the survey, the assistants

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