

## **DEDICATION**

To the soul of my father and my son Mohammed

To my lovely mother

My dear wife

My sons and daughters

To all those who work in the field of extension and rural development

**Yousif**

## **Acknowledgement**

I would like to express my deep gratitude, thanks, and respect for the serious and patient supervision provided to me by the main supervisor Dr Mohammed Badawi Hussein of the Department of the Agricultural Extension and Rural Development, College of Agricultural Studies, University of Sudan for Science and Technology. I gratefully acknowledge his unlimited support, assistance, advice and encouragement to accomplish this work.

Thanks and respects were extended to co-supervisor Abd Elmahmoud Hassan Elsheikh for his contentious advice and encouragement during the study.

I am also deeply and indeed indebted to Ahmed Elshafee research extension officer of (SKRDP) who provided me with valuable information, help and assistance especially during the field survey. Thanks to all colleagues and those who have extended their help and assistance to me.

And finally I would like to express my appreciation to my family for their patience and encouragement during the period of the study.

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## LIST OF ABBREVIATIONS

These terms were defined to meet the study purpose as follows:

- 1. Age:** It is the number of years the respondent lived from birth to the date of interview.
- 2. Education:** It is the formal and informal education that completed by the respondent.
- 3. Khalwa:** It is a religious education for Muslims.
- 4. Family members:** It is the total number of family members who lived in one house and managed by the household head.
- 5. Land tenure system:** It is a farming system by which farmer is able to use the land in farming.
- 6. Ocolgom (temporary gift):** Local term used to that kind of land tenure system in which land is given to be grown for only one season.
- 7. Malwa:** It is a container used mostly in measuring small amounts of crops; it weighs about 3 kg of sorghum.
- 8. Mukhamas:** It is a measurement of an area which is equivalent to 1.73 feddan, equivalent to 0.5 hectare.
- 9. Household income:** the annual income of the household or the respondent from farm and other sources in SDG.
- 10. Comparative advantage:** the advantages of the improved sorghum varieties compared to the advantages of local sorghum varieties.
- 11. Kisra:** Sudanese meal made of sorghum, millet, or wheat flour prepared by mixing it with water, fermented and made in a form of sheets.

**12. Aseida:** Sudanese meal (porridge) prepared from sorghum or millet flour added to boiled water with vigorous steering until it takes compact form.

**SKRDP:** South Kordofan rural development programme.

**GDP:** Growth domestic product.

**RAU:** Rural administrative unit.

**BS:** Bank of Sudan.

## **Abstract:**

The study was conducted in south Kordofan, Sudan in the working area of south Kordofan rural development programme (SKRDP) for the period (2001-2008).

The main objective of the study was to determine and assess the factors affecting diffusion and adoption of some recommended packages of the improved sorghum varieties approved by concerned committees, identify some farmers socioeconomic and demographic characteristics, some relative advantages of the innovation and the extension activities that affect the process of diffusion and adoption of improved sorghum recommended packages.

The study was based on primary data collected through a social survey as research method, and questionnaire as data collection instrument.

Multi stage stratified random sampling technique, from three localities namely Kadugli, Dilling, and Rashad as strata were used. The rural administrative units were considered as strata and the extension villages were other strata. Two hundred respondents were selected systemically from village's population records. The secondary data from the relevant sources were used too.

Statistical package for social sciences (SPSS) was used to analyze the data, presenting the results in descriptive statistics, frequency distribution and percentages to profile the sample, and Chi square test at level of significance (0.05, 0.01) were used to detect the dependency of the variables of the study (the dependent and independent variables) in affecting change of knowledge and practice of farmers towards some recommended packages of improved sorghum, and its affect on diffusion and adoption of these packages.

**The most important findings of the study were:**

–Higher percentages of farmers (adopters and non adopters) knew about the recommended improved sorghum, especially Wad Ahmed variety which indicates the high rate of awareness.

–High literacy was recorded among respondents in the area (78%) had been obtained different levels of education, due to the religious education for Muslims in khalwa and the formal education before university.

–The majority of respondents (78%) grow crops in their own land, for home consumption.

–Unexpectedly high ratio of women headed the house holds (21%) because of civil war and high divorce incidence.

–The adoption of the recommended packages of improved sorghum(seed rate, spacing, weeding)showed significant differences between the adopters and the non adopters by the source of information on agriculture, size of the family, kind of the training obtained, comparing the local sorghum with the improved in productivity, revenues and quality of the straw as forage.

The adoption of some recommended packages of improved sorghum(spacing, seed rate ,weeding) showed non significant differences between the adopters and the non adopters by age groups, social status, level of education, comparing local sorghum with the improved in seed color , taste and making kisra and aseida.



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- **The most important recommendations were:**
- Strengthening the link between extension, research, and the farming community in a unified strategy.
- Conduct extension surveys to determine the real problems and needs of the farming community.
- Provide the extension staff with suitable training for more effective extension work.
- Apply on farm research to adapt the findings of research to the practical situation.
- Provide farmers with the farm inputs and credit at the suitable time.
- More research is needed to identify the most affecting factors on diffusion and adoption of the new ideas.

## الخلاصة

أجريت هذه الدراسة بولاية جنوب كردفان بمنطقة عمل برنامج التنمية الريفية لجنوب كردفان للفترة (2001 – 2008).

الهدف الرئيسي لهذه الدراسة هو معرفة وتحديد العوامل التي تؤثر في عملية نشر وتبني بعض الحزم التقنية الموصي بها من المحطات البحثية للذرة المحسنة وتحديد بعض الخصائص الاقتصادية والاجتماعية للمزارعين، الميزة النسبية للذرة المحسنة والمناشط الارشادية التي تؤثر في عملية نشر وتبني الحزم التقنية الموصي بها للذرة المحسنة.

اعتمدت الدراسة علي المعلومات الأولية التي جمعت من خلال الزيارة الحقلية التي تم اعتمادها كطريقة بحث.

استخدمت العينة الطبقية العشوائية متعددة المراحل لجمع البيانات عن طريق الإستبانة من محليات كادقلي، الدلنج ورشاد علي اعتبار أنها طبقة والإداريات بهذه المحليات كطبقة والقرى الإرشادية بالإداريات كطبقة. وتم اختيار عدد مائتي مبحوث من سجلات تعداد عائلي (ارباب) الاسر بالقرى الإرشادية بالطريقة المنتظمة حسب الكثافة السكانية للقرى و كذلك تم استخدام البيانات الثانوية من المصادر ذات الصلة.

استخدمت طريقة التحليل الإحصائي للعلوم الإجتماعية لتحليل البيانات وعرضها وصفيًا علي شكل تكرارات ونسب مئوية لإعطاء موجّهات عامه للدراسة، ومن ثم استخدم مربع كاي عند مستوي معنوية (0.05) و (0.01) لمعرفة الفروقات المعنوية بين متغيرات الدراسة (التابعه والمستقلة) في مدي اعتماديّة التابعه علي المستقلة في عملية تغيير المعلومات والممارسة للمزارعين تجاه الحزم التقنية الموصي بها للذرة المحسنه وتأثيرها في عملية نشر وتبني هذه الحزم. من أهم النتائج التي توصلت إليها الدراسة:-

- هناك نسبة عالية من الوعي بوجود حزم تقنية موصي بها للذرة المحسنة وسط المزارع (90%) (متبنين وغير متبنين) ونسبة (82%) حصلوا على خدمه ارشاديه مما يعكس النسبة العالية من الإنتباه للفكرة الجديدة.

- هناك نسبة عالية من التعليم وسط المبحوثين في منطقة الدراسة (78%) حصلو علي نسب مختلفة من التعليم مما يعزي ذلك للتعليم الديني للمسلمين بالخلوه أو التعليم النظامي قبل الجامعي.
- معظم المبحوثين ملاك للأراضي (78%) يزرعون المحاصيل في أرضهم إلا أن زراعتهم لغرض الإستهلاك المنزلي اكثر منه لغرض التجارة.
- هناك نسبة عالية غير متوقعة من النساء عائلات للأسر (21%) و قد يعزي ذلك للوضع الإجتماعي للأسر بالمنطقة كإرتفاع نسبة الأراامل لظروف الحرب الأهلية أو إرتفاع نسبة الطلاق.
- أظهرت نتائج تبني بعض الحزم التقنية الموصي بها للذرة المحسنة (كمية البذور، المسافات الزراعة وعدد الحشات)، حيث أظهرت نتائج معنوية بين المبحوثين (المتبنين وغير المتبنين) بالنسبة لمصدر المعلومات عن الزراعة، حجم الاسرة ونوع التدريب المتحصل عليه وكذلك مقارنة الذرة البلدية مع المحسنة من حيث الإنتاجية، العائد ونوعية العلف. بينما اظهرت الدراسة نتائج تبني بعض الحزم التقنية (كمية البذور، مسافات الزراعة وعدد الحشات) نتائج غير معنوية بين المبحوثين (المتبنين وغير المتبنين) بالنسبة للمجموعات العمرية، الحالة الإجتماعية، المستوي التعليمي، ومقارنة الذرة المحسنة مع البلدية من حيث لون البذرة، الطعم ومن حيث صناعة الكسرة والعصيدة.

أهم التوصيات التي توصلت اليها الدراسة:-

1. تقوية العلاقة بين الإرشاد، البحوث ومجموعات الزراعة في إستراتيجية موحدة.
2. عمل مسوح إرشادية لتحديد المشكلات والإحتياجات الفعلية للمجتمعات الزراعية.

3. توفير التدريب المناسب للعالمين بالإرشاد الزراعي لتفعيل العمل الإرشادي.
4. تنفيذ البحوث التطبيقية والتجارب في حقول الزراع بغرض توطين النتائج البحثية
5. توفير مدخلات الإنتاج والتمويل للزراع في الوقت المناسب.
6. إجراء مزيد من البحوث من أجل تحديد العوامل التي تؤثر في نشر وتبني التقنيات الجديدة.

