

HAITI PRODUCTIVE LAND USE SYSTEMS

SOUTH-EAST CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

and

AUBURN UNIVERSITY

RATES OF ADOPTION OF PLUS PROJECT
INTERVENTIONS
NORTHWEST HAITI, JULY 1994

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EXECUTIVE SUMMARY

Approximately 70 percent of the farmers in the Northwest Department of Haiti have adopted one or more of the soil and water conservation practices promoted by CARE for the PLUS Project. Included in this group of farm families are those who have adopted the practices as a direct result of CARE's implementation program as well as those who have adopted the practices secondarily from other farmers as well as some who have adopted the practices as a result of programs implemented by development projects other than the PLUS Project.

Primary adoption rates for specific Project interventions are generally less than 30 ± 10 percent. Included in this group are only those farmers who indicated they have adopted the practice as the direct result of CARE's implementation program. Rates of secondary adoption for individual interventions are generally less than 5.5 ± 2 percent; however, there are some exceptions. To be counted as a secondary adopter farmers had to indicate that they had begun installation of a soil and water conservation practice without the aid of CARE's field staff and after having observed it on a neighbor's field or having learned of the practice from another farmer.

The improved-stubble-barrier ("ramp pay amélioré") has the highest rate of primary and secondary adoption at 30 and 12.6 percent, respectively. Stubble incorporation ("pike tè") has the highest total rate of adoption (adding rates of adoption attributed to primary and secondary PLUS-adopters and adopters from "Other Programs"). Following the "ramp pay" is a group of four interventions, including vegetable gardens, deep digging, hedgerows and stubble incorporation, with primary adoption rates clustered about 20 percent. Next in ranking are a group of interventions with rates of primary adoption ranging between 6 and 12 percent. This third group includes hillside rockwalls and gully dams. In last place is the tree grafting intervention with a primary rate of adoption of 2 percent.

The study results invite conjecture as to the reasons behind the differences in adoption rates among individual interventions. We offer some suggested reasons as a means of stimulating further discussion and use of the study results. For example, the improved stubble barrier and stubble incorporation may have the highest rates of secondary adoption because they build on existing practices and do not require off-site inputs. Some of the differences in adoption rates can be explained by the lack of on- or off-farm resources such as rocks for rockwalls or grafting material for grafts or ravines for damming. The current or previous existence of development programs implemented by projects other than the PLUS Project explains some differences in adoption rates.

In addition to the overall rates of adoption calculated for the zones in which CARE works or has worked, we provide rates of adoption for the individual zones or localities which were in our sample. These figures may provide further insight as to applicability of the interventions to these localities, the efficiency of implementation, or other factors affecting adoption. To facilitate this use of the study, the study results and raw data are provided in TABLES 1-3. Figure 1 shows the region-wide rates of adoption in a bar graph.

The objective of the study was to document those proportions of farmers adopting PLUS Project interventions at the invitation and assistance of CARE and those proportions adopting from other farmers. Those adopting directly from CARE are termed primary adopters. Those adopting from other farmers are termed secondary adopters. The study was conducted with a two-stage cluster sample designed to yield 95 percent confidence intervals approximately equal to 10 percent. Our calculations indicated this level of confidence would require the following first and second stage samples. For the first stage, we randomly selected 12 of the 87 localities or zones in which CARE operates or has recently operated in the Northwest Region of Haiti. The second stage sample consisted of a random sample of 30-35 individuals from a census listing of the farmers in each area. The questionnaire and statistical formulas used in the study are presented in an appendix.

REZIME

Apreprè 70 pou san agrikiltè nan Nòdwès peyi Dayiti adopte youn oubyen plis nan teknik konsèvasyon sòl ak dlo lapli CARE/PLUS fè ekstansyon pou yo kote lap travay. Nan 70 pou san sa a genyen non sèlman moun ki patisipe dirèkteman nan pwogram CARE/PLUS, men tou genyen moun ki pran teknik yo kay yon lòt plantè, ak moun ki aprann teknik yo nan yon lòt pwojè ki pa Pwojè PLUS.

To adopsyon patisipan dirèk nan aktivite Pwojè a òdinèman mwens pase 30 ± 10 pou san. Nan chif sa a genyen sèlman agrikiltè ki di yo adopte yon teknik paske yo patisipe dirèkteman nan pwogram CARE ("adoptan primè"). To adopsyon moun ki aprann yon teknik kay yon lòt plantè ("adoptan segondè") jeneralman mwens pase $5,5 \pm 2$ pou san; men, genyen kèk eksepsyon. Pou yo konte yon moun kòm "adoptan segondè", li dwe di li enstale estrikti konsèvasyon sòl ak dlo lapli yo san èd teknisyen CARE lè li fin obsève estrikti a nan jaden yon vwazen oubyen lè se yon lòt agrikiltè ki aprann li teknik la.

Ranp pay amelyore genyen pi gwo "to adopsyon primè", 30 pou san, ak "to adopsyon segondè", 12,6 pou san. Antere pay nan tè ("pike tè") bay pi gwo to adopsyon total (lè ou mete ansanm "adoptan primè", "adoptan segondè" ak adoptan ki patisipe nan "lòt pwogram"). Apre ranp pay, gen yon gwoup ki genyen kat aktivite: jaden legim, pike tè a fon, ranp vivan ak antere pay nan tè, tout ansanm bay 20 pou san "adopsyon primè". Apre genyen yon gwoup aktivite ki bay to adopsyon ant 6 a 12 pou san. Twazièm gwoup sa a genyen ladan-1 mi sèk ak baraj ravin. Andènnye ou jwenn grefaj zab fwitye ki bay yon to adopsyon 2 pou san.

Rezilta etid sa a ta fè moun mande pou ki rezon genyen diferans nan to adopsyon aktivite yo. Kòm baz diskisyon, nou bay kèk rezon ki ta ka esplike diferans sa yo. Pa egzanp, ranp pay amelyore ak antere pay nan tè ta ka bay "to adopsyon segondè" ki pi wo paske yo fèt apati teknik ki egziste deja e yo pa mande bagay plantè a pa ka jwenn kote li ye a. Gen kèk diferans nan to adopsyon yo ki kapab esplike paske plantè a pa kapab jwenn sou plas resous teknik la mande tankou ròch pou fè kòdon ròch ou byen materyel pou fè baraj nan ravin. Gen lòt diferans nan to adopsyon yo ki esplike akòz lòt pwogram devlopman ki sou teren an kounye a oubyen ki te egziste nan zòn nan.

Anplis to adopsyon total pou zòn kote CARE ap travay oubyen te travay, nou bay tou to adopsyon pou chak zòn oubyen lokalite kote nou te fè ankèt la. Chif sa yo ka pèmèt pi byen konprann si yon aktivite aplikab pou lokalite a, si ekstansyon teknik la byen fèt nan zòn nan, oubyen lòt bagay ki fè to adopsyon an ka varye. Pou pi byen sèvi ak rezilta etid sa a, nou bay rezilta ak chif gwosomodo yo nan Tablo 1-3. Nan figi 1, nou montre to adopsyon yo pou tout rejyon Nòdwès la nan yon graf ki fèt ak ba.

Etid sa a te fèt pou pèmèt konnen ki kantite plantè ki adopte teknik Pwojè a paske yo patisipe dirèkteman nan pwogram CARE/PLUS ki ede yo ak ki kantite ki aprann teknik yo lakay yon vwazen. Moun ki gen kontak dirèk ak CARE yo rele yo "adoptan primè". Sa ki pran teknik yo kay vwazen yo rele yo "adoptan segondè". Echantiyonaj pou fè etid sa a te fèt yon fason pou asire yon enteval konfyans ki egal apeprè 10 pou san. Kalkil yo te montre pou jwenn yon nivo 95 pou san konfyans, sa ta mande pou fè de kalite echantiyonaj. Toudabò, nou chwazi owaza 12 nan 87 lokalite kote CARE ap travay oubyen te travay pa lontan sa nan Nòdwès la. Answit, nou chwazi yon echantiyon ki genyen 30 à 35 moun sou yon lis resansman plantè nan chak zòn. Kesyonè ak fòmil pou fè kalkil estatistik yo prezante nan anèks etid la.

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I would like to thank the following people for their assistance in conducting this study. Mr. Roosevelt Saint-Dic, SECID agricultural economist, and Mr. Hiriél Laurent, CARE sociologist, developed the study questionnaire and provided a major amount of training and supervision to the data collectors. Mr. Greg Brady and Mr. Athus Pierre of CARE provided helpful suggestions on the scope of the study and administrative support.

I would also like to thank the CARE regional team leaders and their staff in whose zones we worked (and whose physical facilities we used during our stay in their zones) for their hospitality, logistical and administrative support. These team leaders are Gustin Judicael, Delice Jean Claude, Occil Adelbert and Regis Yves.

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Aurinel Cerilus
Honore Branth
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Justin Jean Pierre
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INTRODUCTION

This is a report of our first study of the proportions of farmers adopting PLUS Project interventions. The geographic target for this initial study was the Northwest Department, CARE's zone of operation. The objective of the study was to document those proportions of farmers adopting PLUS Project interventions at the invitation and assistance of CARE and those proportions adopting as a result of information received from other farmers and without CARE's involvement. Those farmers who adopt from other farmers and without CARE's involvement are called secondary adopters. Included as secondary adopters are farmers who, after having installed an intervention, invited CARE to assist them. Those farmers who attribute another development program or project as their source of information constitute a third group of adopters.

As part of our effort to document the PLUS Project's impact on farmers and to provide project implementors with management information, we initiated, in March 1994, a process leading to a study of the proportion of farmers who had adopted various Project interventions. (We refer to these proportions as the rates of adoption.) We also were interested in gathering farmers' opinions or appraisals on Project interventions for similar monitoring and evaluation purposes. After several discussions with the PLUS Team, it was decided that the study would first be done in CARE's areas of operation. We also decided to include all of the 87 localities within the Northwest in which CARE has worked or is currently working. This was done to provide insight into adoption rates (especially secondary adoption) in zones where CARE does not currently have an active program.

SECID agricultural economists Lea and Saint-Dic worked closely with CARE's staff, Greg Brady, Athus Pierre and sociologist Hiriell Laurent, to develop focused objectives for the study and associated study methodology. It was decided to focus first on the rates of adoption. The farmers' appraisals could be addressed at a later date; however, we decided to begin (as time allowed during the present study) collecting information that would assist us design that later study.

STUDY RESULTS

Approximately 70 percent of the farmers in the Northwest Department of Haiti have adopted one or more of the soil and water conservation practices promoted by CARE for the PLUS Project. Included in this group of farm families are those who have adopted the practices as a direct result of CARE's implementation program as well as those who have adopted the practices secondarily from other farmers as well as some who have adopted the practices as a result of programs implemented by development projects other than the PLUS Project.

Primary adoption rates for specific Project interventions are generally less than 30 ± 10 percent. Included in this group are only those farmers who indicated they have adopted the practice as the direct result of CARE's implementation program. Rates of secondary adoption for individual interventions are generally less than 5.5 ± 2 percent; however, there are some exceptions. To be counted as a secondary adopter farmers had to indicate to our data collectors that they had begun installation of a soil and water conservation practice without the aid of CARE's field staff and after having observed it on a neighbor's field or after having learned of the practice from another farmer, that is, they did not learn about it from CARE or some other development project.

The improved-stubble-barrier ("ramp pay amélioré") has the highest rate of primary and secondary adoption at 30 and 12.6 percent, respectively. Stubble incorporation ("pike tè") has the highest total rate of adoption (adding rates of adoption attributed to primary and secondary PLUS-adopters and adopters from "Other Programs"). Following the "ramp pay" is a group of four interventions, including vegetable gardens, deep digging, hedgerows and stubble incorporation, with primary adoption rates clustered about 20 percent. Next in ranking are a group of interventions with rates of primary adoption ranging between 6 and 12 percent. This third group includes hillside rockwalls and gully dams. In last place is the tree grafting intervention with a primary rate of adoption of 2 percent.

The results are statistically accurate within a confidence interval of ± 10 percent of the estimates for the rates of adoption. This yielded coefficients of variation that average around 22 percent. The confidence intervals for the rates of secondary adoption are relatively larger, with coefficients of variation averaging around 29 percent. The 10 percent confidence interval implies that we cannot say there is a significant degree of difference between rates that are within 10 percent of each other. Thus, we cannot say that there is a significant difference in the rates of adoption of the vegetables garden, hedgerow, deep digging, and stubble incorporation.

We decided to include areas in which CARE did not currently have an active program. This probably increased the variability of the data significantly over what it would have been if we had only considered areas in which CARE had an active program. For example, the rate of adoption of vegetable gardens varied between zero and nearly 60 percent across localities. If CARE had an active program in all these areas, it is likely that adoption rates near zero would not have occurred. This variability cost us some analytical power in that we are not able to distinguish statistically between many of the adoption rates. On the other hand, we gained some insight into secondary adoption by including areas in which CARE was not currently active. For example, we found that the locality of Zabat (near La Fond) had an elevated rate of secondary adoption

for the vegetable garden.

DISCUSSION OF RESULTS

Developing reasonable explanations for the differences in adoption rates may provide project managers with useful insights that could assist them improve the effectiveness of implementation programs. We might suggest that the interventions with the highest rates of secondary adoption, the improved stubble barrier and stubble incorporation, may be the easiest interventions to adopt because they build on existing practices and do not require off-site inputs. To create the improved stubble barrier, farmers simply covered the traditional stubble barrier with soil. To incorporate stubble required that farmers not burn-off the stubble prior to the first tillage; instead, they hoed it under. It is notable that the stubble barrier and stubble incorporation have the highest total rates of adoption (adding rates of adoption attributed to primary and secondary PLUS-adopters and adopters from "Other Programs").

Some of the differences in adoption rates can be explained by the lack of farm-level resources. For example, not all farmers have ravines. Some interventions may require scarce off-farm inputs such as rocks for rockwalls or grafting material for grafts. Other development programs have influenced the method of adoption and may have influenced the level of primary adoption. For example, the levels of adoption attributed to the PLUS project and to "Other Programs" for stubble incorporation are statistically equal (see TABLE 1).

The difference between farmers' general rate of participation, 70 percent, and their rates of adoption for specific interventions, less than 31 percent, raises similar questions. It is clear that most farmers are involved and, in most cases, have contact with the PLUS Project or some other development project. Why do their rates of adoption of individual interventions differ so markedly from their rate of general involvement? Answers to these questions may help explain Project accomplishments and lead to more effective program implementation. But where will these answers come from? Perhaps, a formal study of the farmers' appraisals of the interventions.

In addition to the overall rates of adoption calculated for the areas in which CARE works, we provide rates of adoption for the individual zones or localities which were in our sample. These figures may provide further insight as to applicability of the interventions to these localities, the efficiency of implementation, or other factors affecting adoption. To facilitate this use of the study, the study results and raw data are provided in TABLES 1-3. Figure 1 shows the region-wide rates of adoption in a bar graph.

FIGURE 1
Rate of PLUS Project Intervention Adoption
Northwest Haiti, July, 1994

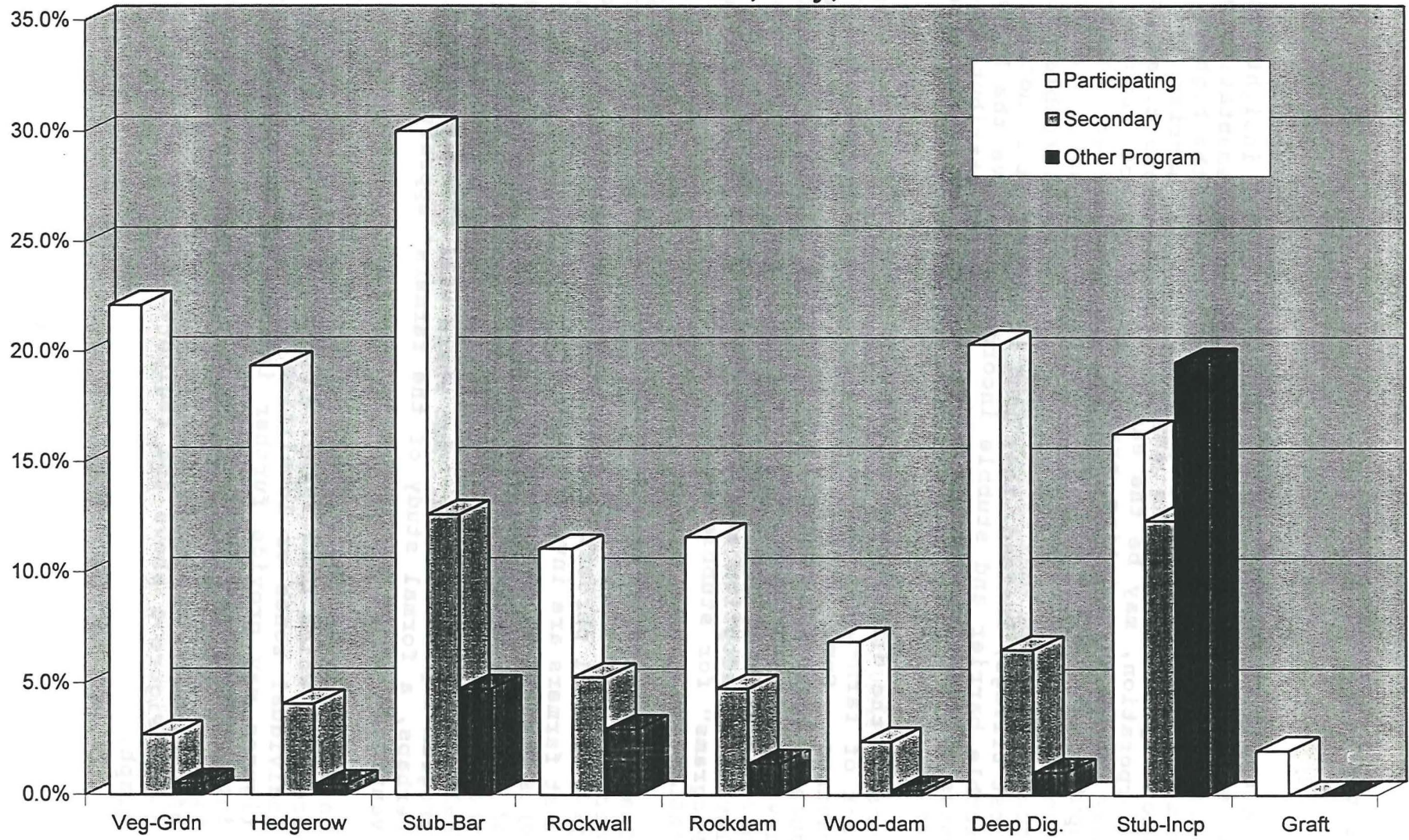


TABLE 1
RATES OF PLUS PROJECT INTERVENTION ADOPTION
NORTHWEST HAITI, JULY, 1994

Interventions	Source of Information Leading to Adoption					
	PLUS/CARE (Primary)		Other Farmers (Secondary)		Other Programs	
	Percent	Confid. Interval + or -	Percent	Confid. Interval + or -	Percent	Confid. Interval + or -
Vegetable Garden	22.1%	9.2%	2.7%	1.9%	0.5%	0.7%
Hedgerow	19.4%	8.4%	4.1%	2.2%	0.5%	0.6%
Stubble Barrier	30.0%	9.7%	12.6%	6.0%	4.7%	4.7%
Rockwall	11.1%	6.0%	5.3%	2.8%	3.0%	2.0%
Rock Gully Dam	11.6%	5.0%	4.8%	2.3%	1.4%	1.4%
Wooden Gully Dam	6.9%	3.9%	2.4%	1.8%	0.2%	0.4%
Deep Digging	20.3%	8.7%	6.5%	3.6%	1.0%	0.9%
Stubble Incorporation	16.3%	5.8%	12.4%	6.8%	19.5%	16.4%
Tree Grafts	2.0%	1.8%	0.0%	0.0%	0.0%	0.0%

Proportion of farmers adopting at least one soil and water conservation practice is 70.6 percent with a confidence interval of 14.7 percent.

TABLE 2
RATE OF PLUS PROJECT INTERVENTION ADOPTION: NORTHWEST HAITI, JULY 1994
RESULTS BY LOCALE

Region and Locale	Adopter Types	Veg Garden	Hedgerow Barrier	Stubble	Rockwall Rock Gully Dam	Rock Gully Dam	Wooden Deep Digging	Incor- porate Stubble	Graft Any Inter- vention		
Bombardopolis											
Rochfort	Participating	57%	33%	57%	17%	17%	3%	57%	20%	0%	93%
	Secondary	7%	10%	13%	0%	7%	0%	0%	3%	0%	
	Other Program	3%	3%	3%	7%	3%	0%	3%	3%	0%	
	Total	67%	47%	73%	23%	27%	3%	60%	27%	0%	
Demoulin	Participating	37%	17%	40%	17%	7%	0%	17%	10%	0%	87%
	Secondary	0%	3%	40%	7%	10%	0%	3%	13%	0%	
	Other Program	0%	0%	0%	3%	0%	0%	3%	3%	0%	
	Total	37%	20%	80%	27%	17%	0%	23%	27%	0%	
Pelicier	Participating	43%	23%	27%	3%	13%	0%	27%	30%	0%	87%
	Secondary	0%	0%	0%	0%	0%	0%	3%	3%	0%	
	Other Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Total	43%	23%	27%	3%	13%	0%	30%	33%	0%	
Palem	Participating	30%	37%	47%	37%	23%	13%	43%	30%	3%	73%
	Secondary	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Other Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Total	30%	37%	47%	37%	23%	13%	43%	30%	3%	
Pichon	Participating	0%	52%	28%	10%	24%	0%	21%	31%	0%	93%
	Secondary	0%	7%	24%	10%	3%	7%	0%	41%	0%	
	Other Program	0%	0%	28%	3%	3%	0%	3%	10%	0%	
	Total	0%	59%	79%	24%	31%	7%	24%	83%	0%	
Barbe Pagnole											
Barbe Pagnole	Participating	8%	13%	10%	10%	8%	15%	5%	13%	8%	26%
	Secondary	5%	5%	8%	8%	8%	3%	10%	10%	0%	
	Other Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Total	13%	18%	18%	18%	15%	18%	15%	23%	8%	

TABLE 2, continued
RATE OF PLUS PROJECT INTERVENTION ADOPTION: NORTHWEST HAITI, JULY 1994
RESULTS BY LOCALE

Region and Locale	Adopter Types	Veg Garden	Hedgerow Barrier	Stubble	Rockwall	Rock Gully Dam	Wooden Gully Dam	Deep Digging	Incor- porate Stubble	Graft Any Inter- vention	
Barbe Pagnole											
Lobier	Participating	22%	8%	30%	5%	3%	16%	22%	5%	0%	70%
	Secondary	0%	3%	8%	3%	8%	5%	19%	27%	0%	
	Other Program	0%	0%	11%	11%	0%	0%	3%	19%	0%	
	Total	22%	11%	49%	19%	11%	22%	43%	51%	0%	
Leblanc	Participating	5%	13%	8%	5%	0%	5%	5%	5%	0%	34%
	Secondary	8%	11%	8%	5%	3%	8%	5%	11%	0%	
	Other Program	3%	0%	0%	5%	0%	0%	0%	5%	0%	
	Total	16%	24%	16%	16%	3%	13%	11%	21%	0%	
Passe Catabois											
Grand Fond	Participating	34%	14%	37%	0%	23%	6%	11%	11%	0%	57%
	Secondary	6%	3%	23%	6%	11%	0%	14%	9%	0%	
	Other Program	0%	3%	6%	0%	9%	0%	0%	83%	0%	
	Total	40%	20%	66%	6%	43%	6%	26%	103%	0%	
Ortolan	Participating	21%	3%	59%	12%	3%	0%	18%	3%	0%	97%
	Secondary	0%	0%	6%	0%	0%	0%	0%	0%	0%	
	Other Program	0%	0%	9%	3%	0%	0%	0%	91%	0%	
	Total	21%	3%	74%	15%	3%	0%	18%	94%	0%	
Raymond	Participating	17%	0%	20%	0%	11%	0%	17%	23%	3%	86%
	Secondary	0%	0%	23%	17%	0%	0%	11%	17%	0%	
	Other Program	0%	0%	0%	3%	3%	3%	0%	40%	0%	
	Total	17%	0%	43%	20%	14%	3%	29%	80%	3%	
La Fond											
Zabet	Participating	8%	14%	11%	11%	8%	17%	6%	14%	8%	81%
	Secondary	6%	6%	8%	8%	8%	3%	11%	11%	0%	
	Other Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Total	14%	19%	19%	19%	17%	19%	17%	25%	8%	

TABLE 3
 RATE OF PLUS PROJECT INTERVENTION ADOPTION
 RAW DATA
 NORTHWEST HAITI, JULY, 1994

Locale	No. of Farmers In Sample	No. of Farmers In Census	Adopter Types	Veg Garden	Hedge- row	Stub. Barr. wall	Rock- wall	Rock Gully Dam	Wood Gully Dam	Deep Dig- ging	Incor- porate Stub.	Graft	Any Inter-
Rochfort	30	138	Participating	17	10	17	5	5	1	17	6	0	28
			Secondary	2	3	4	0	2	0	0	1	0	
			Other Program	1	1	1	2	1	0	1	1	0	
			Total	20	14	22	7	8	1	18	8	0	
Demoulin	30	128	Participating	11	5	12	5	2	0	5	3		26
			Secondary	0	1	12	2	3	0	1	4		
			Other Program	0	0	0	1	0	0	1	1		
			Total	11	6	24	8	5	0	7	8	0	
Pelicier	30	136	Participating	13	7	8	1	4	0	8	9		26
			Secondary							1	1		
			Other Program										
			Total	13	7	8	1	4	0	9	10	0	
Palem	30	192	Participating	9	11	14	11	7	4	13	9	1	22
			Secondary										
			Other Program										
			Total	9	11	14	11	7	4	13	9	1	
Pichon	29	167	Participating	0	15	8	3	7	0	6	9		27
			Secondary		2	7	3	1	2	0	12		
			Other Program			8	1	1		1	3		
			Total	0	17	23	7	9	2	7	24	0	

TABLE 3, continued
RATE OF PLUS PROJECT INTERVENTION ADOPTION
RAW DATA, NORTHWEST HAITI, JULY, 1994

Locale	No. of Farmers in Sample	No. of Farmers in Census	Adopter Types	Veg Garden	Hedge- row	Stub. Barr.	Rock- wall	Rock Gully Dam	Wood Gully Dam	Deep Dig- ging	Incor- porate Stub.	Graft	Any Inter- vention	
Barbe Pagnole	39	216	Participating	3	5	4	4	3	6	2	5	3	10	
			Secondary	2	2	3	3	3	1	4	4			
			Other Program											
			Total	5	7	7	7	6	7	6	9	3		
Lobier	37	167	Participating	8	3	11	2	1	6	8	2		26	
			Secondary		1	3	1	3	2	7	10			
			Other Program			4	4			1	7			
			Total	8	4	18	7	4	8	16	19	0		
Leblanc	38	194	Participating	2	5	3	2		2	2	2		13	
			Secondary	3	4	3	2	1	3	2	4			
			Other Program	1			2				2			
			Total	6	9	6	6	1	5	4	8	0		
Grand Fond	35	141	Participating	12	5	13	0	8	2	4	4		20	
			Secondary	2	1	8	2	4		5	3			
			Other Program		1	2		3			29			
			Total	14	7	23	2	15	2	9	36	0		
Ortolan	34	140	Participating	7	1	20	4	1		6	1		33	
			Secondary			2					0			
			Other Program			3	1				31			
			Total	7	1	25	5	1	0	6	32			
Raymond	35	137	Participating	6		7	0	4		6	8	1	30	
			Secondary			8	6	0		4	6			
			Other Program				1	1	1		14			
			Total	6	0	15	7	5	1	10	28	1		
Zabet	36	124	Participating	3	5	4	4	3	6	2	5	3	29	
			Secondary	2	2	3	3	3	1	4	4			
			Other Program											
			Total	5	7	7	7	6	7	6	9	3		

STATISTICAL METHODOLOGY

The study was conducted with a two-stage cluster sample designed to yield 95 percent confidence intervals approximately equal to 10 percent. Our calculations indicated this level of confidence would require the following first and second stage samples. For the first stage, we randomly selected 12 of the 87 localities or zones in which CARE currently operates or has recently operated in the Northwest Region of Haiti. The second stage sample consisted of a random sample of 30-35 individuals from a census listing of the farmers in each area. The statistical formulas used are presented below.

The questionnaire used in the study was developed by agricultural economist Saint-Dic in consultation with CARE sociologist Laurent and SECID agricultural economist Lea. This process included field testing and modification. The persons who collected the data, the enqueteurs, were hired by CARE and then trained and supervised by Saint-Dic, Lea, and Laurent. Saint-Dic was in charge of the field work near Passe Catabois. Lea was in charge of the field work near Bombardopolis. A copy of the questionnaire is presented below.

REFERENCE

Scheaffer, R. L., W. Mendenhall, and L. Ott. Elementary Survey Sampling. Duxbury Press. Boston. 1986.

STATISTICAL FORMULAS USED

In calculating the rates of adoption the following formulae were used (Scheaffer, Mendenhall, and Ott).

Let

- N = number of clusters
- n = number of clusters selected in a random sample
- M_i = number of sampling units in cluster i
- M_a = average cluster size
- m_i = number of individuals selected in a random sample from cluster i
- \hat{p}_i = unbiased estimator of the adopting proportion in cluster i
- $\hat{q}_i = 1 - \hat{p}_i$

Estimator of population proportion p :

$$\hat{p} = \frac{\sum_{i=1}^n M_i \hat{p}_i}{\sum_{i=1}^n M_i}$$

Estimated variance of \hat{p} :

$$\hat{V}(\hat{p}) = \left(\frac{N-n}{N} \right) \left(\frac{1}{nM_a^2} \right) S + \frac{1}{nNM_a^2} \sum_{i=1}^n M_i^2 \left(\frac{M_i - m_i}{M_i} \right) \left(\frac{\hat{p}_i \hat{q}_i}{m_i - 1} \right)$$

$$\text{where } S = \frac{1}{n-1} \sum_{i=1}^n M_i^2 (\hat{p}_i - \hat{p})^2$$

$$\text{Confidence interval} = \hat{p} \pm 2\sqrt{\hat{V}(\hat{p})}$$

STUDY QUESTIONNAIRE

KESYONÈ POU KALKILE KONBYEN PLANTÈ KI PA KLIYAN CARE
EPI KI ADOPTE TEKNIK CARE PWOPOSE

Dat ankèt la _____

1. Zòn ak lokalite ankèt la ap fèt _____
2. Non plantè a _____
3. Non anketè a _____
4. Eske sezon pase a oubyen nan sezon sa a ou te fè oubyen ou fè jaden legim?
1. WI _____ 2. NON _____
5. Eske ou menm menm ou fè grèf sou plant ou?
1. WI _____ 2. NON _____
6. Ki ladrès/teknik ou fè sezon pase a oubyen nan sezon sa a pou pwoteje tè w,
pou anpeche dlo erozyon pa fin ale avèk tè jaden w?
1. Haies Vives _____ 2. Ranp Pay Amelyore _____
3. Mi sèk/Kòdon pyè _____ 4. Mi sèk/Baraj Ravin _____
5. Kleonaj/Baraj Ravin _____ 6. Lòt (presize) _____
7. Eske sezon pase a oubyen sezon sa a ou te fè oubyen fè anfwisman pay/antere
pay nan jaden w?
1. WI _____ 2. NON _____
8. Eske sezon pase a oubyen sezon sa a ou te fè oubyen fè ladrès pike tè a lè ou
ap fè jaden w?
1. WI _____ 2. NON _____

9. KOUMAN DESIZYON APLIKE TEKNIK SA A TE PRAN POU LA PREMYE FWA?

NON TEKNIK LA	PATISPE NAN SEMI-NE FOMASYON CARE ¹	KI LOT MOUN? ²	PRESANS AJAN TEREN LE TEKNIK LAN TAP APLIKE PREMYE FWA ³	PREMYE FWA A SE OU KI TE ALE CHACHE AJAN TEREN AN ⁴	PREMYE FWA A SE AJAN TEREN AN KI TE ENVITE W ⁵	PRÉM FWA TEKNIK APLIK SAN FOMASYON/ED ⁶
JADEN LEGIM	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
HAIES VIVES	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
RAMP PAY AMELYORE	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
MISEK/KODON PYE	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
MISEK/BARAJ RAVIN	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
KLEONAJ	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
ANFWISMAN	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
PIKE TE	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
GRAF	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non
	Wi Non		Wi Non	Wi Non	Wi Non	Wi Non

1. Eske ou te patispe nan seminè CARE/avèk teknisyen CARE (nan Biwo Care oubyen lòt kote) pou aprann teknik sa a?

2. Si se pa t ajan teren CARE ki te fè w konprann teknik sa a, epi ki te fè w aplike l, se te ki lòt moun? Men kèk repons posib: 1. Wè mwen te wè l nan jaden oubyen sou tè yon lòt plantè; 2. Yon lòt plantè ki te montre m li? 3. Mwen te konnen l avan CARE te vin nan zòn nan; 4. Lòt sikonstans. (Yon nimewo pou chak posibilite yo).

3. Eske ajan teren CARE te la lè ou t ap fè teknik sa a pou la premyè fwa?

4. Eske se ou kite ale chache ajan teren pou li ede w fè teknik sa a lè ou t ap fè l pou la premyè fwa?

5. Eske se ajan teren CARE ki te fè w konprann ke ou dwe aplike teknik sa a, epi ki te envite w sèl ou avèk lòt plantè pou te fè teknik sa a pou la premyè fwa?

6. Pou la premyè fwa ou t ap aplike teknik sa a eske se te ou menm pou kont ou ki te pran desizyon pou te fè l, san fòmasyon nan men CARE, epi san èd ajan teren CARE?

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