

TABLE 6: STUDIES ON THE IMPACT OF AGRICULTURAL RESEARCH CONDUCTED IN ESA COUNTRIES USING NON ECONOMETRIC METHODS

COUNTRY/LEVEL	COMMODITY	TIME PERIOD	RATE OF RETURN (%)	REFERENCES
Kenya	Maize	1971 1955-1988	NA 58-60	Mooch, 1978 Mazzucato, 1992
	Ex ante simulation	NA	NA	Mills et al, 1996
	Wheat	1922-1980 1921-1990 1921-1990	33 0-12 14-30	Makau, 1984 Makanda & Oehmke, 1996 Akgungor et al., 1996
Malawi	Maize	1957-1992	4-64	Smale & Heisy, 1993
Namibia	Millet	1988-1999	11	Anandajayasekaram et al, 1995a
Rwanda	Potato Seed	1978-1985	40	Monares, 1984
Sudan	Sorghum	1979-1992	53-97	Ahmed et al, 1995
Tanzania	Maize	1965-1994	19-23	Moshi et al, 1997
Uganda	Cassava	1990-1996	121	Bua, 1998
	Maize	1985-2006	27-58	Laker-Ojok, 1993
	Soybean	1985-2006	<0-20	Laker-Ojok, 1993
	Sunflower	1985-2006	10-66	Laker-Ojok, 1993
Zambia	Maize	1978-1991	84-87	Howard et al, 1993
	Sorghum	1983-2005	12-25	Chisi et al, 1997
Zimbabwe	Cotton	1970-1995	45-50	Mudhara, et al, 1995
	Maize	1991-1996	1.35:1 ₁	Kupfuma, 1994 MacMillan et al; 1991
	Soyabeans	1965-2000	45-51	Mudhara et al, 1997
	Sunflower	1976-2000	20-23	Murata, et al, 1997
	Groundnuts	1960-2000	39-53	Mazhangara, et al, 1997
	Sorghum	1980-1999	22	Anandajayasekaram et al, 1995a
	Wheat	Since 1980	NA	Mudhara & Mashiringwani, 1996
South Africa	Beef and dairy cattle improvement schemes	1970-1996	44-51	Mokoena & Townsend, 1998; Thirtle Townsend, 1997
	Cover crop management	1987-1996	44	Thirtle et al, 1998b

	Lachenalia research and development	1965-2015	7-12	Marasas et al., 1998a Niederwiesser et al., 1997
	Proteaceae research and development	1974-2005	8-12	Wessels et al, 1998, 1997
	Russian wheat aphid integrated control program	1980-2005	22-28	Marasas, 1999 (this study)
East Africa	Potato	1978-1991	91	International Potato Centre, 1994; Ewell, 1992
Southern Africa	Sorghum and millet	1992-1993 1985-2010	NA 4-14	Friis-Hansen & Rohrbach., 1993 Anandajayasekeram
	Sugarcane	1945-1962	40	Evenson, 1969
Africa	Aggregate by region	NA	30-40	Evenson, 1987
	Cassava	1977-2003	149:1 ₁	Norgaard, 1988
	Maize and staple crops	1962-1980	30-40	Evenson, 1987
	Maize	1966-1990 1968-1988	NA NA	Byerlee et al, 1991 Gilbert et al, 1994
	Wheat	1966-1990	54	Byerlee & Moya, 1993

- 1 A benefit cost ratio was calculated instead of a rate of return.
- * NA = Not available from the literature sources consulted, or not applicable, i.e. no rate of return was calculated
- SACCAR = Southern African Centre for Co-operation in Agricultural and Natural Resources Research and Training
 - CYMMIT = International Centre for Wheat and Maize Improvement
 - DRSS = Department of Research and Specialist Services
 - ICRISAT = International Crops Research Institute for the Semi Arid Tropics
 - SMIP = Sorghum and Millet Improvement Program
- * Sources: Adapted from Oehmke et al. (1997); Anandajayasekeram et al. (1996) and Echeverria (1990), Marasas 1999.