substantial preventive efforts.

In other ways the health problems highlighted in this issue are unique to this region of the world. This is perhaps most dramatic for the 'dop' system, a holdover from colonial times in the Cape region in which partial payment for farm work is given in alcohol. The dop system was found to exist in 9.5% of farms in the Stellenbosch region of South Africa by te Water Naude and co-workers. While the actual prevalence of this practice must vary with the region, the commonness of this antiquated and pernicious practice is striking and its impact on farm worker health is evident. These effects include both the direct acute and chronic effects of alcohol on the workers, and a range of secondary effects including fetal alcohol syndrome, traumatic injuries, interpersonal violence and a range of social disruptions. The high rate of physical assaults and abuse of farm workers, including from employers, is another dramatic finding reported in this issue. Finally, an 81% prevalence of tobacco use observed by London and co-workers among deciduous fruit farm workers is another example of local conditions and practices reflecting the region and culture. It would be interesting to know if this prevalence differs from the prevalence among non-farm workers of similar ethnicity. We have observed smoking prevalences of under 30% among California Hispanic farm workers, similar to the rates among urban Hispanics in the state.[11]

Farm workers represent a seriously and tragically under-served worker population. Their health is adversely affected by occupational hazards in agriculture, migrancy and social discrimination, and poverty. While good epidemiological data are lacking on the cumulative impact of these factors, there is little question that they result in substantial morbidity and mortality in this population. This issue of the *SAMJ* performs an important service in calling attention to the desperate condition of these workers in southern Africa. It is time for increased attention, resources and preventive efforts to be applied to this population, both in southern Africa and around the world.

Marc Schenker

Department of Epidemiology and Preventive Medicine
University of California Agricultural Health and Safety Center
Davis, Calif.
USA

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FARM WORKERS IN SOUTH AFRICA — THE CHALLENGE OF ERADICATING ALCOHOL ABUSE AND THE LEGACY OF THE 'DOP' SYSTEM

Despite the priority given to the redress of past inequity by current primary health care initiatives, farm workers remain a marginalised group whose needs appear to be overlooked consistently in many policy documents emanating from various government departments.[1-3] There are approximately 1.1 million workers and their families on commercial farms in South Africa,[4] and agriculture is a major contributor to the Western Cape economy.[5] Despite an overall decline in the past 20 years, agriculture remains one of the largest single employment sectors in South Africa today,[4] particularly for women.[6]

Conditions for workers on many South African farms remain poor, despite a gradual modernisation of production in South African agriculture. For example, a 1996 survey of farms in Mpumalanga and Northern Province found that only 34% of farm workers had running water in their homes, 27% had no access to toilet facilities of any kind, and less than 50% had access to electricity.[7] Farm workers' incomes are consistently lower than the incomes of urban unskilled workers[6] and a 1995 household health survey found that more than two-thirds of farm worker families in the Western Cape generated a total income of less than R900 per month.[8] Education levels of farm workers have been shown to be low in a number of studies, suggesting that on average they have about 5 years of schooling.[9-11] Illiteracy is common, particularly among older workers, as data in this issue of the *SAMJ* show.[12] Poor eduction

acts as a major barrier to occupational mobility of the rural workforce and limits job opportunities for the rural population outside the farming sector.[6] Coupled with the abject lack of preschool facilities[13] and ongoing and widespread use of child labour in agriculture,[14,15] children of farm workers are locked into a cycle of poverty and marginalisation. As a result, almost a half of all employed adults in South Africa with less than 6 years of education are to be found in commercial agriculture.[6]

Health indicators suggest a high burden of disease among farm workers and their families. For example, data suggest rates of tuberculosis in excess of 1 000/100 000 and low-birth-weight rates close to 30% in some farming districts of the Western Cape.[16] Tuberculosis rates in rural farming areas are generally higher than rates for urban areas in the Western Cape.[17]

However, the health and social problems faced by farm workers are not simply those of poverty. One of the unique features of agriculture in the Western Cape is the 'dop' system, historically characterised as the institutionalisation of alcohol as a medium of remuneration of, and social control over, employees.[18] While the formal application of the dop system has declined substantially over the past decade, the associated legacy of widespread alcohol abuse is enormous. Evidence presented in this edition of the *SAMJ*[12,19] points to the ongoing practice of the dop system, as well as to the pernicious impact of widespread alcohol abuse on the social and physical well-being of farming communities in the rural Western Cape. In particular, fetal alcohol syndrome (FAS) is the most common condition seen at peripheral genetics clinics in the province, and preliminary data suggest that the prevalence of FAS among rural farm children in the Western Cape may be among the highest in the world (Professor Denis Viljoen, University of Cape Town — personal communication, 1996).

Another aspect of this culture of alcohol is its influence on violence. In the context of a labour relations environment characterised by paternalism and authoritarian attitudes of farmers towards their workers,[20,21] alcohol conditions the ways in which farm workers relate to each other, to their families and to their employers. As a result, violence becomes a common medium for resolving differences, both between employer and employee in the form of informal discipline[22] and, particularly, between employees. More than 60% of cases of trauma seen at rural hospitals are alcohol-related, involving injuries due to interpersonal violence, most frequently over weekends following binge drinking.[23] Rural trauma rates are 15% higher than those for urban areas and almost 30% more injuries are alcohol-related.[24]

In a multitude of ways, therefore, the culture of sustained alcohol use serves to enmesh farm workers in a web of poverty-related conditions, from which escape is exceedingly difficult.

The impact of alcohol abuse on health service delivery is huge. Nurses working on mobile clinics in rural areas near Cape Town point to the fact that farms where alcohol abuse is rife experience greater social problems such as child and spouse abuse, malnutrition and poor hygiene.[12] Compliance with treatment for tuberculosis is much poorer and interactions with patients much more difficult. Alcohol-abusing patients often migrate between farms, and are adept at manipulating service providers, playing nurses off against each other. Drunk patients are often abusive and threatening, a problem aggravated by the confined working conditions in the mobile clinics. The threats and the isolation of the farms act as a disincentive to nurses to spend more time on precisely those farms where the need is greatest, thereby increasing the problems of inequity.

In 1995, largely in response to these problems, nurses on mobile clinics serving the farming areas around Stellenbosch initiated a more coherent approach to addressing the impact of the dop system and alcohol abuse on their client communities. The project, called DOPSTOP, drew in a network of university, non-governmental, service and development organisations with the explicit aim of eradicating the dop system and reducing excessive alcohol abuse in the region. Farmers and farm workers who have succeeded in stopping the dop system on their farms are key participants in the project. DOPSTOP was officially launched in June 1997 with the support of the Provincial Departments of Health and Social Services and the Stellenbosch Agricultural Association.

How can a problem as endemic as alcohol abuse on farms in the Western Cape be addressed successfully? International experiences and trends[25-34] may provide some valuable pointers to the components and approaches key to sustaining successful multisectoral interventions aimed at community alcohol problems. Early historical approaches to alcohol control were based on moral concepts of excessive drinking, for which the answer was punishment or moral counselling. However, in the late 18th and early 19th centuries, when the essentially addictive properties of alcohol were recognised, these moral approaches were displaced by medical management together with control over availability of alcohol. Later, in the 1930s and 1940s, the disease model of excessive drinking as defined by Alcoholics Anonymous came to dominate public health interventions. In terms of this model, 'alcoholism' was attributed to an unknown, pre-existing characteristic of certain people and the disease's progression, it was argued, could be halted only by total abstinence. This disease model, albeit substantially refined, remains dominant in the USA,[25-28] but elsewhere, notably in Australia, Canada and Europe, increasing emphasis has more recently been given to social and psychological factors in alcohol (and other psychoactive substance) dependence with greater evidence of successful interventions.[28]

In South Australia, for example, the late 1970s began a 15-year period during which a public health approach to substance abuse emerged, based on a conceptual shift in

understanding alcohol abuse as a learned behaviour and non-problem drinking on a continuum with problem drinking. Preventive approaches aimed at both modifying cognitive processes and potentiating environmental factors, with more resources directed at prevention and early intervention than at treatment.[29] Australia has also grappled with alcohol problems among the Aboriginal communities, whose health profile, historical experiences and social environment[30] mirror that of rural communities of the Western Cape in a number of ways. Successful participatory health promotion programmes among the Aboriginal peoples in the Northern Territories have focused on negotiated decision-making partnerships to develop action plans to address alcohol-related harm and on raising awareness through non-directive, positive messages. Programmes have also involved all relevant government and non-government agencies in the popularisation of the programme and in training key support workers in rural Aboriginal communities.[31]

Other experiences in Northern Australia[32] point to the need to provide comprehensive and integrated strategies that target both individuals and the environment, through services for people with drinking problems and their families, as well as community education, training, legal strategies, research and evaluation. The Northern Territory Living With Alcohol (LWA) Programme is funded from a levy on alcoholic beverages and integrates school-based activities, domestic violence interventions and other community-based strategies in its approach. Evidence for the success of these strategies is impressive. In its first 3 years, the LWA's achievements include a reduction in alcohol-related accidents by 39% and in alcohol-related deaths by 31%; a 29% decline in arrests for exceeding the legal blood alcohol level; apparent per capita consumption reduced by 18%; light beer consumption now 30% of the beer market compared with under 1% in 1992; and injection of an additional $10 million into community initiatives.[32] There are also indications of early successes in alcohol control among the Aboriginal population.[33]

Drawing on these international as well as local experiences, over the next 3 - 5 years DOPSTOP intends to implement a comprehensive multi-sectoral approach, involving a combination of services, education, training, research and advocacy. (Some of the preliminary research emanating from this project is presented in this issue of the *SAMJ*.[12]) The project is seen as a pilot for extension to other parts of the rural Western Cape, where alcohol remains a major health and social problem. Some of the lessons already learnt in the early work of DOPSTOP have been that legal enforcement alone is simply inadequate as an isolated strategy and that a multidisciplinary comprehensive approach is required. Given the complex nature of the problem, a long-term framework is needed to implement and evaluate the effectiveness of interventions.

Moreover, if the programme is to succeed, its understanding of the problem needs to take full account of the contradictory social functionality of alcohol and the dop system in farming communities, where unequal power is a crucial element in social relations. For example, there have been instances where alcohol-addicted workers deprived of the dop system have turned to the purchase of liquor, resulting in greater hardship for poverty-entrapped families, particularly in terms of an increase in domestic violence. In the absence of social alternatives to alcohol and support systems for cessation, simply stopping the provision of alcohol without any development programme in place may ironically increase hardship among farm workers and their families.

Similarly, for some farmers, the dop system has been experienced as a passive practice, inherited from a family or historical tradition, rather than as an active choice in the social control of workers. Simplistic notions of farmers as (wicked) agents and workers as (helpless and innocent) passive victims bear little relationship to a complex social reality, and are not helpful in developing prevention programmes that will ultimately be most effective in benefiting the most marginalised.

In many ways the legacy of the dop system poses huge challenges to organised agriculture and to the health services. It is encouraging that support from local farming organisations indicates that there are many farmers who have seen that it is in their interests to assist in projects to eradicate the dop system, and for whom investment in human capital reflects a long-term view of economic sustainability.[34] It is up to the health services to find creative ways to foster initiatives that draw on community resources to solve community problems in the most appropriate and sustainable ways.

L London
D Sanders
J te Water Naude

DOPSTOP Project
Stellenbosch, W Cape

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