



Challenges of agriculture-related eye injuries in Nigeria

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Agriculture, which includes crop farming, livestock rearing and fishing, provides work for up to 70% of the labour force in Nigeria.¹ The agricultural sector contributes up to 20% of the gross domestic product (GDP) of Nigeria, with an average real growth rate of 3.5% from 2014 to 2015.²

People involved in agriculture and farm-related activities are at greater risk of eye injuries.

Unpublished data from the Nigeria National Blindness and Visual Impairment Survey showed that, of the participants who had a history of eye injury, over half (53%) were farmers. Of those without a history of eye injury, only 39% were farmers. A 5-year hospital review of people with eye injuries showed that more than two-thirds of all eye injuries were sustained on a farm. Although non-penetrating eye injuries were more common, 15% of people were already blind in the injured eye at presentation.³ In a multi-centre retrospective review of ocular trauma among older people, eye injury most commonly occurred on the farm (37.2%).⁴

Some of the **main causes** of agriculture-related eye injuries include:

- 1 Accidental direct trauma with farm implements (e.g. cutlass, hoe, fishing hook, etc.)
- 2 Vegetable/plant/organic material hitting the eye, or spillage into the eye (cocoa pod, cornstalks, sticks/twigs, palm tree stalks, thorn, leaf, kernel, etc.)
- 3 Sand spillage into eye
- 4 Other foreign body (FB) in the eye
- 5 Animal attack injury (e.g. cow horn injury, spitting cobra, insect sting)
- 6 Assault injuries during communal conflicts involving crop farmers and cattle herdsman.

A hospital series reported vegetative/plant material as a cause of 42% of eye injuries.⁵ Cow horn injury is an important cause of monocular blindness as it often results in severe open globe injuries with corneo-scleral lacerations.^{6,7} Life-threatening poisonous arrow injuries to the eye sustained during communal conflicts between farmers have also been reported.⁸

The **effects of injury to the eye** include:

- 1 Embedded foreign body in the eye
- 2 Corneal abrasion



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People involved in agriculture are at risk of eye injury. NIGERIA

- 3 Traumatic cataract
- 4 Penetrating laceration resulting in lens injury, vitreous haemorrhage, or retinal tear/detachment
- 5 Microbial keratitis – fungal or bacterial
- 6 Panophthalmitis/endophthalmitis, or sympathetic ophthalmitis – often requiring enucleation/evisceration

Four decades ago, a hospital case series in Nigeria reported that 15 out of 21 patients with mycotic keratitis (71%) had a history of eye injury, 10 (66.7%) of which involved vegetative matter.⁹ One recent retrospective review of corneal ulcers/suppurative keratitis showed that the most common predisposing factor was trauma (seen in 51.3%); of these, 36/117 (30.8%) were from plant/vegetable matter.¹⁰

Poor **prognostic factors** for agriculture-related eye injuries are:

- 1 Nature of injury: worse prognosis if due to vegetative material and exacerbated by inappropriate use of traditional eye medication or steroid eye drops.
- 2 Severity of injury: worse if it is a penetrating injury or an injury to multiple ocular structures
- 3 Late presentation at a health care facility
- 4 Evidence of infection at the time of presentation
- 5 Difficulty in management and inadequate treatment options for eye injuries in health care facilities, e.g. lack of required products such as bandage contact lens, visco-elastic and fine nylon sutures; and the lack of support services for therapeutic keratoplasty, corneal repair within 24 hours and vitreo-retinal surgical facilities.

Prevention and management

A large sector of the population is at risk of monocular blindness from agriculture-related eye injuries, so there is a need for prevention. However, there is very little

evidence (from research in this area) to guide and develop appropriate messages or policy. Some possible measures include:

- 1 Raising public awareness and health education through television or radio programmes on eye safety or by giving health education talks in hospital/clinic waiting rooms.
- 2 Encouraging the use of protective eyewear by those at risk and making such eyewear available and affordable.

- 3 Establishing a national or state-based ocular injuries register to record incidence by type, cause and pattern of injury. This could be used to inform appropriate public policy and legislation on eye safety.
- 4 Working with hospitals to develop policies that will allow management of eye injuries on an emergency basis. Departments can collaborate and work out a payment schedule so that treatment/surgery can be initiated without having to wait for payment of fees by patients.
- 5 Lobbying government, or insurance companies directly, for health insurance to cover the treatment of eye injuries.
- 6 Demarcating dedicated ranches or areas of free-grazing for livestock/cattle-rearing which are separate from areas of crop farming. This will help to prevent communal clashes between farmers. This is being implemented in some communities at present.

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