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Review Article

Conflicts Between Farmers and Herders in West Africa: Bibliometric and Thematic Analysis of the Literature

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Abstract

Conflicts between farmers and herders are an issue of growing concern in several West African countries, including Benin. A bibliometric and thematic analysis of the literature was conducted to assess the contribution of scientific research to this topic. A search for scientific articles addressing the subject in English and French was conducted using the Scopus database. The study examined 299 documents retrieved from Scopus, ultimately selecting 212 articles that focused on the causes, manifestations, consequences, dynamics, and management strategies regarding conflicts between farmers and herders. The database of selected articles was then imported into VOSviewer for bibliometric analysis. The results show that these 212 articles were published between 1994 and 2026 across 148 different journals. A growing interest in the subject among researchers in the West African sub-region was observed starting in 2019. The case studies reviewed established that researchers from Nigeria (86 articles) and Ghana (25 articles) were the most productive and influential, accounting for 27.22% and 7.11% of citations, respectively. Benin's output was relatively low, with 10 articles and 3.72% of citations. Bibliometric analysis identified the journals *African Security* and *GeoJournal* as having a significant impact on the scientific community regarding this topic in recent years. This analysis made it possible to explore the scope of the literature on the subject and to identify aspects of these conflicts that have received limited attention, such as their complexities (seven occurrences), the measures envisaged by leaders for their prevention or management (five occurrences), and the perceptions held by the involved parties regarding the various measures implemented by leaders (three occurrences).

Categories: Ruminant nutrition, Rural management & development (trade, livelihoods)

Keywords: systematic review, conflict, farmers, herders, sedentarization

Introduction And Background

Livestock contributes 44% to agricultural GDP in West Africa [1-3]. In these countries of the sub-region, the essentially pastoral system [4] is facing more threats than ever before. In the West African Sahel, violent conflicts are intensifying in rural areas. For example, in the period from 2019 to 2020, more than 10,000 people died in violent episodes in the five worst-affected countries (Mali, Niger, Burkina Faso, Nigeria, and Cameroon), 44% more than in the previous year [5]. Several factors explain this situation [6]. Indeed, the search for fertile land by farmers, population growth, and urbanization have led to the expansion of cultivated and residential areas to the detriment of grazing areas. These are some of the factors that can contribute to the conflicts observed in these rural areas [7-10]. There are also the effects of climate change, which have drastically reduced grazing areas, forage species, and water sources [11,12]. As a result, access to pastoral resources becomes problematic for pastoralists. There is competition between livestock and crop

production, with the conversion of grazing land into arable land and the occupation of the edges of watering holes by irrigated crops. Conflicts between farmers and livestock herders have arisen in several sub-Saharan African countries due to damage caused to crops during herd movements or difficulties in accessing pastoral areas because of the dynamics of land use and occupation by farmers [13-15]. These conflicts not only have a direct impact on the lives and livelihoods of those involved but also disrupt and threaten the sustainability of agricultural and pastoral production systems [16,17]. Conflicts between farmers and herders are becoming recurrent [18], with adverse effects that hamper the economic fabric and social cohesion between actors who should complement each other to promote their activities and local development in sub-Saharan Africa.

Given that this is an issue of growing concern in several African countries, this article sets out to carry out a bibliometric analysis and critical review in order to assess, quantitatively and qualitatively, the dynamics of publications relating to conflicts between farmers and herders. On the one hand, the choice of bibliometrics to carry out the literature analysis is justified by the fact that bibliometrics is the subject of great interest in several fields within the international scientific community [19,20]; on the other hand, it seems that no such publication on conflicts between farmers and herders has yet been published, to our knowledge. The thematic analysis will be based on bibliometrics to identify possible avenues of investigation in relation to the themes developed in the literature. The overall aim of this study is to carry out a bibliometric and thematic analysis of publications relating to conflicts between farmers and herders. Specifically, the aims are to (1) identify the dynamics of scientific research contributions related to conflicts between farmers and herders; (2) identify the influential players in this literature (journals, countries, and authors) and the themes they have developed; and (3) determine possible avenues of investigation in relation to conflicts between farmers and herders.

In addition, bibliometric approaches have increasingly been used in the social sciences to map research frontiers and highlight gaps in knowledge, particularly in areas where empirical case studies dominate but comparative syntheses remain scarce [21-23]. Applying such methods to farmer-herder conflicts is therefore timely, as these conflicts are multidimensional, involving ecological, socio-economic, and political drivers that require systematic categorization to inform policy responses [24,25].

Review

Methodology

Data Collection

The steps involved in data collection are illustrated in Figure *1*. Data were collected from the Scopus database, a representative database developed by the publisher Elsevier. It indexes recent publications across multiple disciplines and contains citations and abstracts from peer-reviewed journals, specialist magazines, books, conference proceedings, etc. Using these tools, it is possible to monitor, analyze, and visualize research results.

In order to obtain an exhaustive database of documents relating to conflicts between farmers and herders, a search was first carried out using keywords and logical operators. In the literature, various expressions are used to describe the same subject. These include, for example, "conflict between farmers and herders" or "farmers and herders' conflict." Similarly, the terms "breeder" and "herder" are used in documents dealing with the same topic written in English to designate the breeders or herders. It was therefore decided to include these different possible variants when searching for documents in the database. To narrow the scope of the literature search, each of the 16 West African countries recognized by the United Nations was included in the search equation.

The search query used to retrieve documents related to the topic from the Scopus database is as follows: "Conflict" OR "Relationship" AND "between farmer and herder" OR "between farmer herder" OR "farmer and herder" OR "farmer herder" OR "between farmer and breeder" OR "between farmer breeder" OR "farmer and breeder" OR "farmer breeder" AND "West Africa" OR "Benin" OR "Burkina Faso" OR "Cap-Vert" OR "Côte d'Ivoire" OR "Gambie" OR "Ghana" OR "Guinée" OR

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"Guinée-Bissau" OR "Liberia" OR "Mali" OR "Mauritanie" OR "Niger" OR "Nigeria" OR "Senegal" OR "Sierra Leone" OR "Togo". The link to the search performed on August 11, 2026 at 5:56 PM is as follows: https://www.scopus.com/pages/search/publications?searchId=532cf805-4641-4a3d-a88e-0a6e7331e700

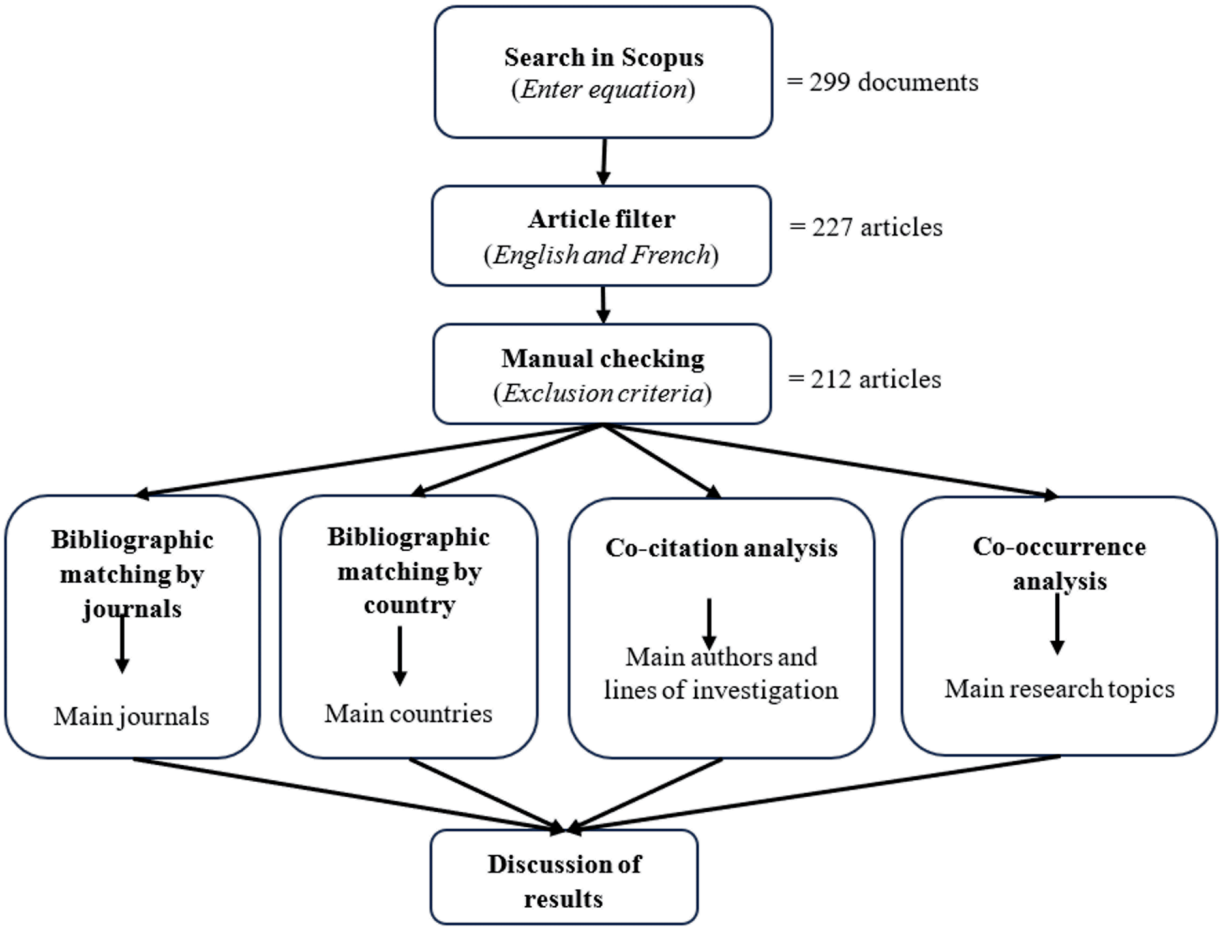


FIGURE 1: Research methodology

In this database, 299 documents containing these keywords in the title, abstract, or indexed keywords were identified. The results were then limited to journal articles written in English or French in the fields of social sciences, environmental sciences, and agricultural and biological sciences. This resulted in the selection of 227 articles for manual screening. Manual screening based on titles and abstracts was conducted to retain only those articles relevant to the scope of the study. Ultimately, 212 scientific articles were selected that directly addressed the subject, specifically the causes, forms, consequences, and impacts of conflicts between farmers and herders, as well as strategies for managing them.

Bibliometric Analysis

VOSviewer software was chosen for bibliometric analysis. Using bibliometric data (authors, abstracts, keywords, year of publication, references, etc.) from articles exported from Scopus, VOSviewer enables metadata to be mapped and visualized in the form of graphs. According to Nandiyanto and Al Husaeni [26] and Rosmayati and Maulana [27], bibliometric analysis is based on network theory. VOSviewer considers each publication as a node, with all nodes (publications) linked to each other on the basis of bibliographic references (citations). The size of the nodes represents the number of occurrences of the theme studied, and the distance indicates the closeness of the relationship between two themes. Articles that cite each other thus form a network.

Critical Review

The critical analysis followed the bibliometric analysis. It focused on the analysis of themes with the highest number of occurrences, highlighting the areas of interest in the various studies conducted and published on conflicts between farmers and breeders. The links between these themes and the conflicts made it possible to assess how they have been addressed by researchers.

Results and discussion

Distribution of Articles and Their Journals of Publication

The study first examined the annual distribution of the 194 articles published between 1994 and 2025. There are 18 articles listed in the database for 2026; these were excluded from the graph because the year has not yet concluded.

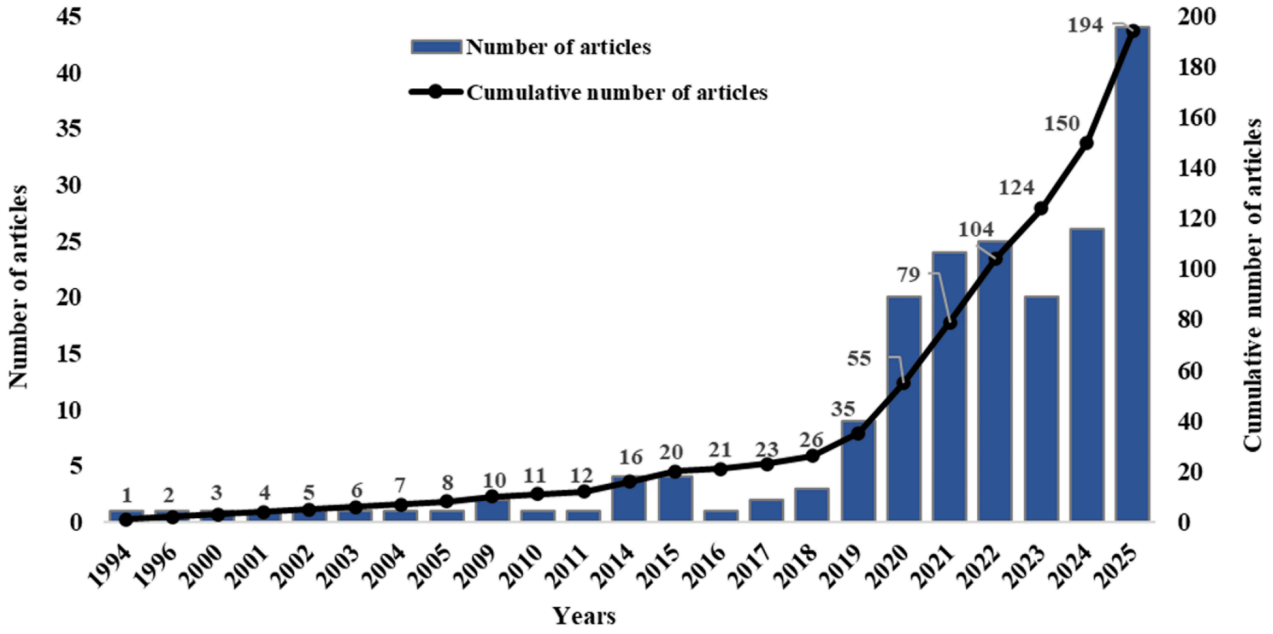


FIGURE 2: Annual distribution of articles on farmer-breeder conflicts published between 1994 and 2025

This figure shows a remarkable increase in the number of articles concerning conflicts between farmers and herders. It is also worth noting that the growth in the number of published articles accelerated from 2019 onwards, with 86.60% of the listed articles published between 2019 and 2025. This demonstrates the extent to which conflicts between farmers and herders have become a major concern within the scientific community today.

A total of 148 journals were identified in the Scopus database, illustrating the diversity of journals publishing articles on conflicts between farmers and herders. Bibliographic coupling analysis made it possible to identify the top 10 journals based on the citation counts of their published articles (Table *1*). Out of the 212 articles selected for this analysis, these journals account for only 12.74% (27 articles) of the total; however, these 27 articles received 1,271 (38.28%) of the 3,320 total citations. The high visibility of these articles, as evidenced by their citation counts and Field-Weighted Citation Impact, demonstrates that they have a significant scientific impact or serve as a research foundation for those studying conflicts between farmers and herders.

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No.	Name of journal in Scopus database	Number of citations in the journal	Number of articles	Average citations per articles	Scopus CiteScore	Cited references	Number of citations to the article	FWCI
1st	Political Geography	261	2	130.5	9,1	[28]	259	4.7
						[29]	2	2.56
2nd	African Security	205	6	34.2	2.8	[30]	59	4.15
						[31]	74	5.47
						[32]	36	2.74
						[33]	27	1.5
						[34]	6	0.88
						[35]	3	1.04
3rd	Geographical Journal	154	1	154.0	6.1	[36]	154	3.16
4th	Human Organization	107	1	107.0	1.4	[37]	107	0.97
5th	GeoJournal	98	6	16.3	6.3	[38]	16	0.37
						[39]	19	0.78
						[40]	59	2.42
						[41]	2	0.29
						[42]	1	0.33
						[43]	1	0.33
6th	World Development	94	3	31.3	9.3	[44]	68	4.86
						[45]	13	2.12
						[46]	13	4.18
7th	Journal of Rural Studies	92	2	46.0	10.9	[47]	68	1.04
						[48]	24	1.98

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8th	Journal of Development Studies	91	1	91.0	4.1	[49]	91	2.64
9th	Democracy and Security	90	1	90.0	2.4	[50]	90	12.75
10th	African Studies Review	79	4	19.8	2.6	[51]	63	8.58
						[52]	7	0.88
						[53]	3	2.05
						[54]	6	3.1

TABLE 1: List of the 10 most-cited journals (Scopus database, August 11, 2026)

FWCI, Field-Weighted Citation Impact

A temporal visualization of the bibliographic coupling of these journals was then generated using VOSviewer (Figure *3*). It was observed that the 10 journals form a network comprising three clusters. The first cluster (brown) consists of three journals: the *Journal of Development Studies*, the *Geographical Journal*, and *Human Organization*. The second cluster (green) includes the journal *Political Geography*, while the third comprises four journals: *African Security*, *GeoJournal*, *World Development*, and the *Journal of Rural Studies*. A temporal analysis of the links between these clusters reveals that articles from the journals in the first cluster were cited by articles published in journals belonging to the other two clusters. Furthermore, the journal *Democracy and Security* appears to be isolated from the network, as it does not feature in the map generated by VOSviewer.

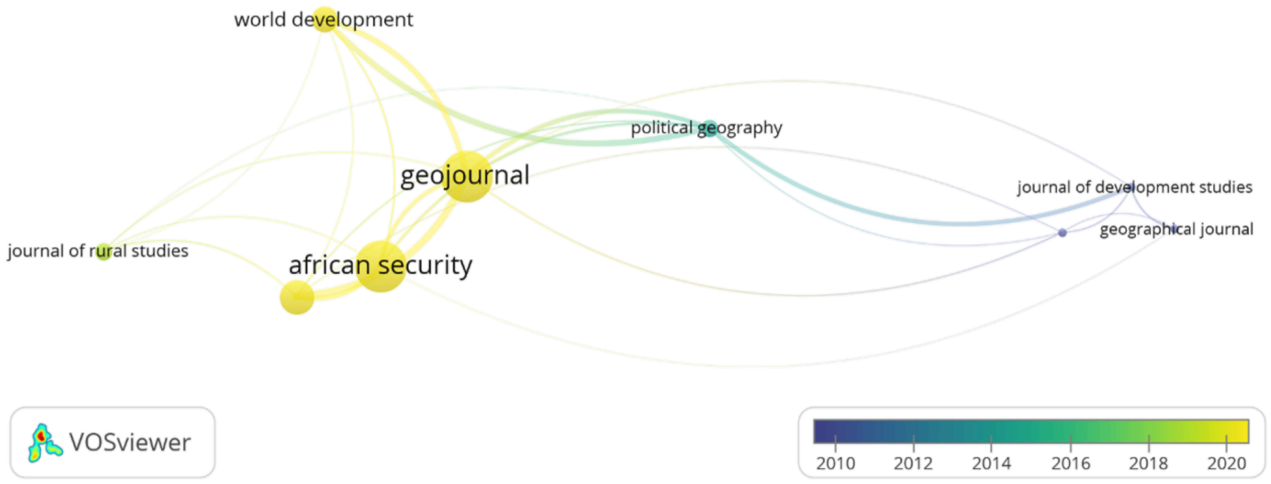


FIGURE 3: Mapping of the 10 journals that have published the most cited articles

The results also show that 29 countries published articles related to the study topic. The country was identified based on the research center listed in the Scopus database. Based on this, a list of the 10 most productive countries was compiled (Table 2). These 10 countries account for 187 of the 212 articles listed in the Scopus database and 2,954 of the 3,320 citations received by the published articles. The table reveals that Nigeria is the most productive country, accounting for 45.99% of the 187 listed articles, followed by the United States (13.37%) and Ghana (13.37%). In terms of citations, articles published by research institutions in the United States are the most influential (30.43% of citations), followed by those published by Nigerian institutions (27.22%). It should also be noted that the level of scientific output on the study topic remains low in Benin; the 10 articles published there account for only 3.72% of the total citations.

No.	Countries	Articles		Citations	
		Number	Percentage (%)	Number	Percentage (%)
1st	Nigeria	86	45.99	804	27.22
2nd	United States	25	13.37	899	30.43
3rd	Ghana	25	13.37	210	7.11
4th	United Kingdom	13	6.95	213	7.21
5th	Benin	10	5.35	110	3.72
6th	South Africa	8	4.28	95	3.22
7th	Germany	7	3.74	233	7.89
8th	Canada	6	3.21	99	3.35
9th	Netherlands	4	2.14	43	1.46
10th	Norway	3	1.60	248	8.40
Total		187	100	2,954	100

TABLE 2: List of the 10 countries that have published the most articles

To assess the level of collaboration among authors from these various countries, interconnections were mapped using VOSviewer (Figure 4). Regarding the subject of the study, a first cluster (red) was identified, showing collaborative links between research centers in Mali and those in Germany and Norway. The second cluster (green) highlights a strong link between researchers from Ghana, South Africa, and the United States. The third cluster (blue) brings together researchers from Canada and the Netherlands. The final cluster (yellow) shows the link between Nigerian researchers and those from the United Kingdom. Benin does not appear in the map generated by VOSviewer, likely due to a lack of collaboration with researchers from other countries on the study topic. Despite low overall productivity, a strong collaborative link was observed between researchers in Mali and those in Norway; specifically, studies conducted in Mali were published by

Norwegian research institutions. As with the first cluster, a review of the various articles reveals that publications produced by external institutions focus on case studies conducted within the African country belonging to that cluster. For instance, Norwegian research institutions published case studies on conflicts between farmers and herders in Mali. The same applies to studies published by institutions from the United Kingdom in collaboration with Nigeria.

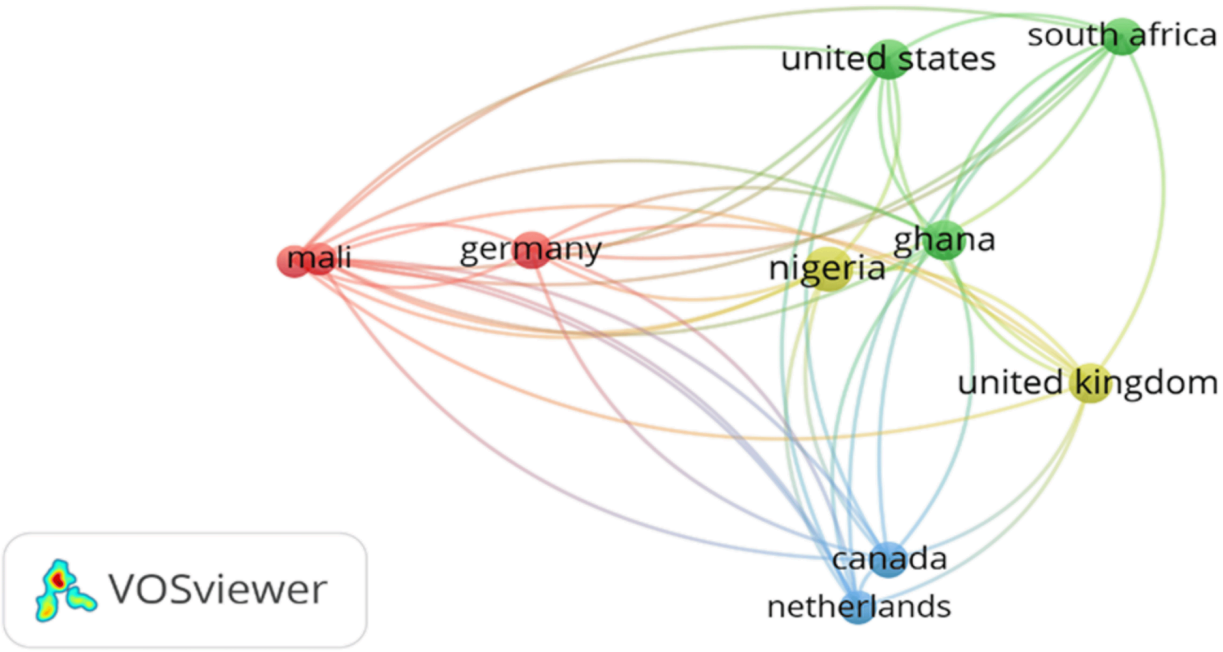


FIGURE 4: Mapping collaboration among authors from the 10 most productive countries

The results of this bibliometric analysis show that the topic of conflicts between farmers and herders has been of interest to the scientific community for nearly three decades [55]. The author published an article on a case study of herd management in which he discussed conflicts between farmers and herders in Côte d'Ivoire.

The surge since 2019 in the number of articles, the journals publishing them, and the countries involved demonstrates the growing concern regarding this issue among West African researchers, particularly those in Nigeria and Ghana. The majority of studies conducted by researchers at research centers outside Africa, such as those in the United States, the United Kingdom, Germany, Canada, and Norway, have focused on instances of conflict between farmers and herders across various West African countries, including Nigeria, Ghana, Benin, Mali, Burkina Faso, Niger, Côte d'Ivoire, Senegal, and Togo. These are case studies of conflicts conducted by researchers from African countries in collaboration with researchers from foreign research centers. It should be noted that the countries featured in these publications are those with agropastoral potential, where conflicts between farmers and herders are intensifying. This is the case for articles published by Olumba et al. [56] on water- and resource-related conflicts in the African Sahel and by Diogo et al. [57], who examined the perceptions of farmers and herders regarding rangeland management in two agroecological zones of Benin. Regarding Benin, it is worth noting that the number of articles on the subject listed in the Scopus database is relatively low (10 articles). These articles were published between 2019 and 2025 and include works by [35,57-61].

Analysis of Co-citations, Co-occurrence, and Lines of Inquiry

A co-citation map was generated using VOSviewer, focusing on authors cited at least 20 times. This threshold was selected to avoid creating an unreadable map and to filter out isolated authors, thereby highlighting the research themes most widely shared among researchers. Within the set of 212 articles, 20 authors met this criterion, enabling the creation

of the map shown in Figure *5*. This map reveals four clusters that highlight the researchers' lines of inquiry regarding the subject under study.

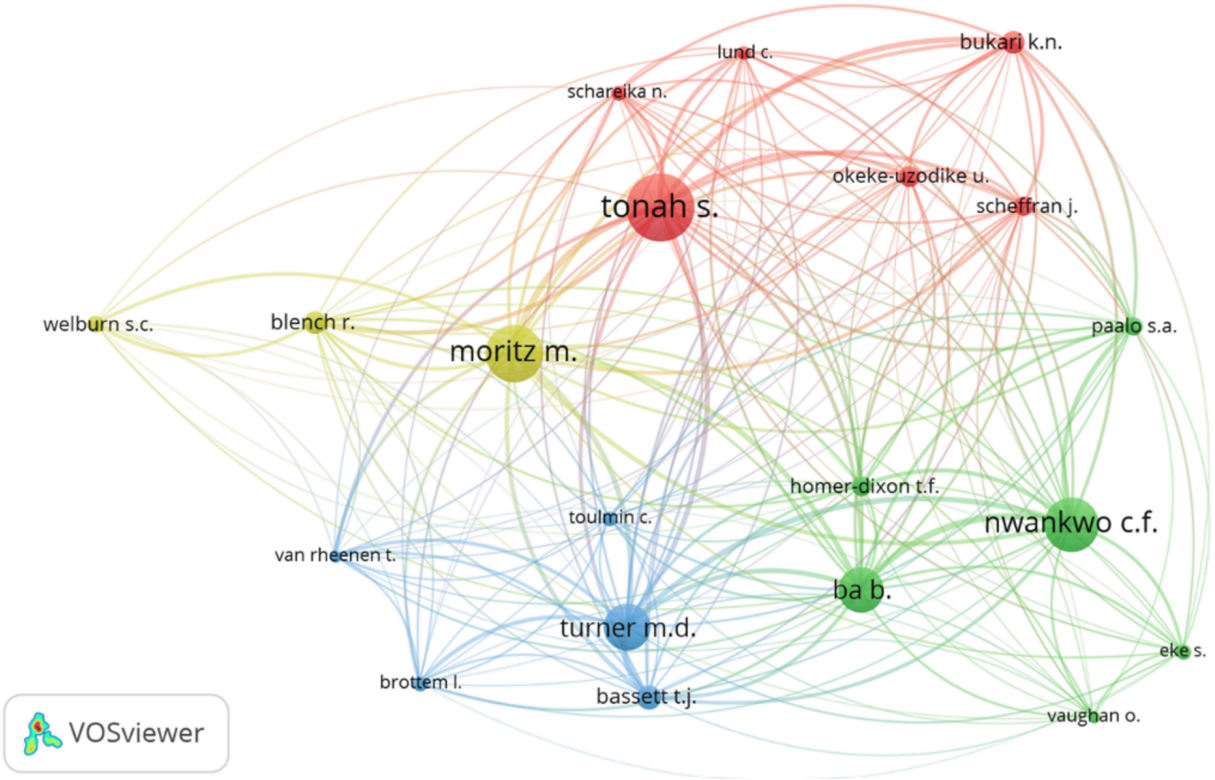


FIGURE 5: Co-citation mapping of the 20 most cited authors

The first cluster (red) was formed around Tonah [62]. Studies within this cluster highlighted the relationships between indigenous farmers and migrant Fulani herders, as well as the prejudices and stereotypes faced by the latter. Research in this cluster also examined the strategies adopted by leaders in certain West African countries, specifically Ghana and Côte d'Ivoire, to manage cattle herd movements and the resulting conflicts. Case studies were also used to explore the reasons why these conflicts escalate into violence.

Studies within the second cluster (green), centered on the work of Nwankwo [29,39,46,63-67], examined farmer-herder conflicts from various perspectives. They documented the primary and secondary causes, as well as the manifestations and consequences, of these conflicts. The dynamics of these conflicts and the reasons why attempts at sustainable resolution have failed were also discussed. These studies demonstrated that religious conflicts can become intertwined with farmer-herder disputes; specific morally reprehensible acts and ethno-religious insinuations can escalate simple conflicts into violence.

Centered on the work of Turner [28,49], the third cluster (blue) comprises articles highlighting mobile pastoralism as a root cause of conflicts and disruptions to the ecological balance. The link between climate and environmental change and conflict is noted, as is the role of customary authorities in managing disputes between farmers and herders. This cluster also covers research examining the interests pursued by various actors involved in the management and arbitration of conflicts between farmers and herders.

Given that some conflicts are resolved peacefully, Moritz [16,37], within the fourth cluster, focused on the causes, timing, and ways in which other conflicts arising in the same context escalate into violent and deadly clashes.

To identify the key themes of the various studies conducted and published on conflicts between farmers and herders, a map of all author-listed keywords was created using VOSviewer (Figure *6*). Typically, authors list five keywords in an article; therefore, a threshold of five occurrences was used to generate the VOSviewer graph. Of the 678 keywords, 25 met this criterion and were analyzed. Node size increases with the frequency of a term's occurrence, and related topics are grouped together.

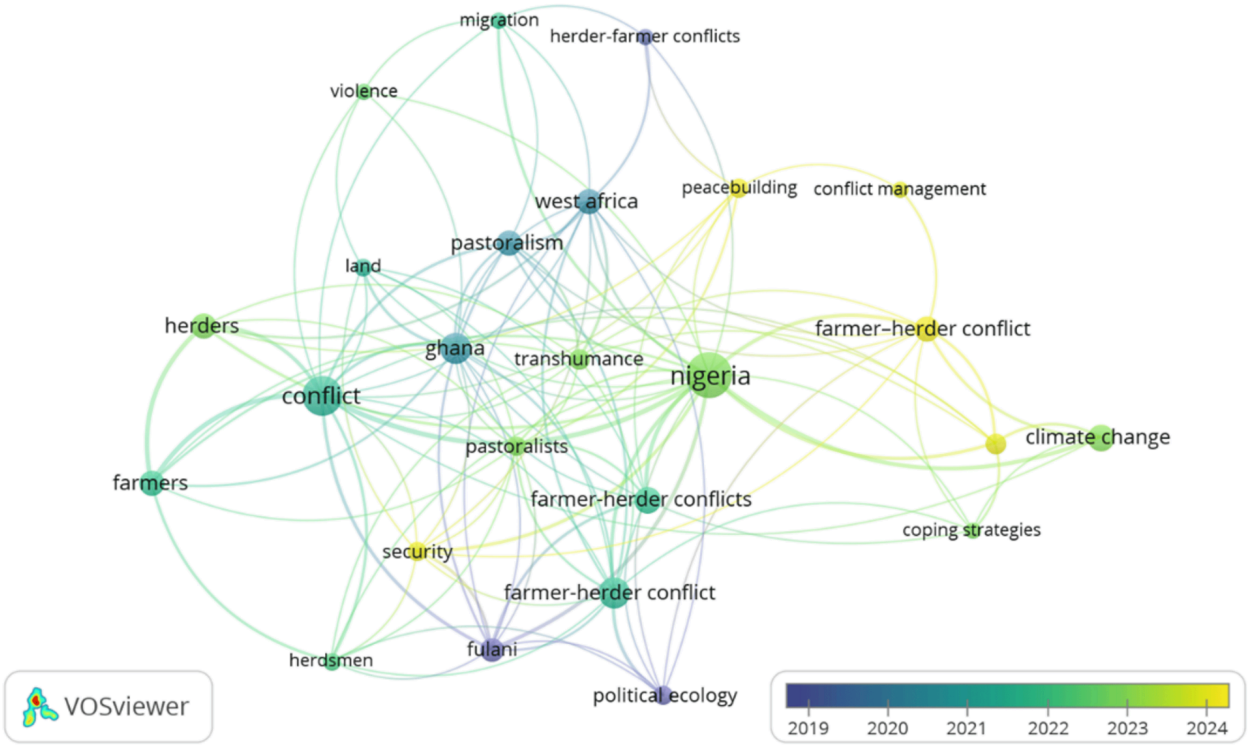


FIGURE 6: Longitudinal mapping of co-occurrences in the literature on farmer-breeder conflicts

It has been observed that the themes of *Nigeria* (44 occurrences), *Ghana* (19 occurrences), and *West Africa* (13 occurrences) appear to be at the center of the graph, indicating that Nigerian and Ghanaian researchers are the most concerned with conflicts between farmers and herders in West Africa. This may be due to the resurgence of this phenomenon in these countries. The theme of conflict, whether or not linked to the terms *farmer-herder*, accounts for a total of 85 occurrences and is associated with the themes of *pastoralism* (13 occurrences) and *pastoralists* (8 occurrences). This may help explain the association between pastoralism and conflicts between farmers and herders. Although it appears relatively infrequently, the theme of Fulani (11 occurrences), which is linked to the themes mentioned earlier, highlights the ethnic identity of a community regularly involved in conflicts between farmers and herders.

Furthermore, a chronological analysis of the publications shows that these themes have been addressed in recent articles. They include *violence* (five occurrences), *security* (eight occurrences), *food security* (nine occurrences), and *conflict management* (five occurrences), among others. The low frequency of these themes indicates that few case studies of conflict have addressed these aspects. Nevertheless, they reflect the evolution of research interests regarding the escalation of conflicts between farmers and herders into violence. It can also be said that recent studies have examined the impact of conflicts or violence between farmers and herders on community security. Identifying sustainable ways to manage such conflicts or violence for the purpose of peacebuilding has also recently become a focus for researchers studying conflicts between farmers and herders.

However, it should be noted that themes such as typology did not emerge from this bibliometric analysis, thereby demonstrating that the literature on conflicts between farmers and herders has not focused extensively on this aspect. A study focused on the typological analysis of conflicts could help elucidate the complexity of certain reported case studies. While the theme of *migration* (five occurrences) is linked to the theme of *pastoralism* to highlight the connection between pastoral mobility and conflict, themes such as *distance* and *productivity* do not appear in the bibliometric mapping. It thus appears that case studies of conflicts between farmers and herders involving animal migration have not paid much attention to the distances covered or the impact on animal productivity. The theme of sedentarization did not emerge from the bibliometric analysis either. This indicates that this topic has received little attention in studies on conflicts between farmers and herders.

Thematic Analyses

Pastoralism and the evolution of conflicts in West Africa: Pastoralism is a livestock farming system based on the use of spontaneous forage resources in natural areas. It is characterized by the mobility of herds in search of natural forage and water. Lhoste et al. [68] report that African pastoralism is thousands of years old. Founded on three entities - humans, animals (herds), and nature - pastoralism is characterized by either nomadism (random movement of the herd with the herdsman's entire family) or transhumance (seasonal movement along specific itineraries). These two forms of pastoral mobility once enabled pastoralists to take advantage of temporal complementarities (rainy and dry seasons) and spatial complementarities (arid and humid zones) to survive and develop. Zakinet [69] considers that transhumance, even if seen as a disorderly and archaic practice, enables herders to access resources that are randomly dispersed in an ecosystem dominated by irregular rainfall in time and space. In economic terms, transhumance enables mobile herders to engage in fruitful exchanges and forge alliances in transit and host areas. According to Nori and Taylor [70] and Dongmo et al. [71], pastoralism plays a major role in food security and makes a significant contribution to the economies of the poorest countries, as it enables the development of land where other forms of exploitation have proved ineffective.

Today, however, this farming system is affected by the general evolution of the socio-economic and environmental context. Indeed, several authors report that climate change, demographic growth with the ensuing urbanization, and the expansion of cultivated areas with the development of cash crops for export have reduced the availability and accessibility of grazing areas and water points for livestock herders [72-74]. In the meantime, veterinary advances have led to an increase in herd numbers, while resources have dwindled. As a result, the conditions for pastoralism by herders have changed, as they compete with farmers for access to, control of, and exploitation of natural resources in the rush for arable and fertile land. Consequently, conflicts over access to or use of pastoral resources have been recorded and have been increasing in recent years.

In recent years, the West African region has seen an increase in the number of conflicts between farmers and pastoralists. This observation was made by Krätli and Toulmin [5] when addressing concerns about the rise in conflicts between farmers and herders. Brottem [24] reports that Nigeria, Mali, Burkina Faso, and even Benin are areas where violent conflict events are concentrated. Cases have been reported by authors in other countries, such as Niger, Chad, Ghana, Côte d'Ivoire, and Cameroon [69,74-78]. The violence of these conflicts is expressed by the fact that loss of human life is often recorded. Between 2010 and 2021, over 15,000 deaths linked to violence between farmers and herders occurred, half of which have been recorded since 2018 [24]. It seems that the future of African pastoral societies depends more and more closely on the relationship between agriculture and livestock [74]. As a result, there is a need to develop and promote approaches for the peaceful cohabitation of the two actors in a secure environment.

Reasons, manifestations, and management of conflicts between farmers and livestock breeders: It seems that the factors that reinforce conflicts relate to the weakness of pastoral governance structures, the unethical behavior of certain actors, and regulatory deficiencies, in addition to environmental and socio-economic factors [79]. From the various case studies reported by different authors, it was noted that conflicts arise from competition between farmers and herders for access to and control over natural resources. It can also be observed that intolerance, inhospitality, or bad faith on the part of one or other of the actors triggers conflictual relations between them. As a result, they blame each other [80]. According to farmers, herders allow their animals to damage crops while grazing their livestock. Sometimes, the care of the animals

is entrusted to minors, even when the herd is large. In such cases, some animals escape control and enter crop fields. Crop damage is the main cause identified by a number of authors [24,69,75,81-84]. In addition to this cause, there are also cases of occupation of animal passageways, grazing areas, and watering points by farmers' crops in the pursuit of fertile land. The aggressive behavior of livestock herdsmen makes farmers distrustful and intolerant of cohabitation with livestock breeders. As a result, in some areas the welcome is belligerent, and farmers reject the idea of living together. Komi [85] reported that inhospitality reigns and clashes are often violent. It is the Fulani herders who are most involved in the conflicts. However, they are not the root cause of the conflicts, as some farmers deliberately set up "trap fields" in areas where crop farming is prohibited but pastoral use is permitted. These crop farming practices are driven by the intention of obtaining compensation for damage caused by animals, as reported by Gnanglè [86], Affessi and Gacha [87], and Kwaja and Smith [88]. Cases have been reported of deviant behavior by some farmers causing the death of herders' livestock in order to dispose of the abandoned carcass and obtain meat to consume without spending money. There are also ancestral prejudices that discriminate against breeders on the part of farmers [85], and even on the part of the actors involved in the management and arbitration of conflicts between farmers and breeders. All these causes undermine socio-economic and environmental development, and hamper social cohesion.

Conflicts between farmers and livestock herders often take various forms, as indicated by Djohy et al. [81], Djenontin et al. [89], and Demba Ba and Descroix [90]. In most cases, they take the form of verbal altercations. Violent forms are characterized by blows and wounds inflicted by the parties on each other and on animals. There are also cases of animal slaughter and human deaths. Brottem [24] noted that over 1,500 deaths were recorded between 2010 and 2020, more than half of them from 2018 onwards. However, the author points out that the outbreak of violence between farmers and herders in Africa is more pernicious than mortality figures alone suggest, as it is often amplified by the emotional charge associated with ethnicity. In the past, farmers and livestock breeders maintained competitive relations that were often manageable. Several actions and steps are often taken to resolve conflicts. The first is amicable settlement, which takes place directly between the two parties [24,91-93]. If negotiations fail, the traditional chieftaincy acts as an intermediary. In some countries, such as Benin, the security forces and the judiciary intervene in conflict resolution when conflicts arise. Their role is to interrupt the conflict and prevent it from escalating. Sometimes, however, the intervention of the security forces may seem unjust or be perceived as punishment by those involved. In such cases, instead of subsiding, the conflict remains latent, and the reprisals that follow are violent, taking on a communal and identity-based dimension amid widespread insecurity. This is why, in certain regions, other conflict management and prevention instruments exist, such as the establishment of multi-stakeholder conflict management committees and the drafting and implementation of local conventions, as reported by Brottem [24]. Benin has adopted a number of laws and regulations governing pastoral mobility in order to prevent or manage conflicts.

In contrast to transhumance, sedentarization is a livestock farming method that limits the mobility of livestock at the farm level. It is characterized by intensification, as grazing areas are reduced and concentrated feed supplements are provided to ensure animal nutrition. This facilitates herd management, since the livestock are located close to the herder, who can better control them. Since colonial times, transhumance has often been regarded as an environmentally damaging activity, incompatible with technical progress and socio-economic development [76]. It appeared that no innovation could be introduced and succeed in a transhumant pastoral environment. With the continued growth of the rural population, increasing land requirements, the disadvantages of transhumant livestock farming and, above all, the conflicts it engenders, decision-makers want herders to settle down in order to exercise better control over livestock and provide support for intensifying and boosting livestock production [94]. Sedentarization is therefore seen as a solution for preventing conflicts between farmers and herders and for improving animal productivity and production.

Dongmo et al. [71] report that the policies implemented to control pastoral populations and intensify their livestock systems have failed, since they did not take sufficient account of the fundamentals of pastoral activity. However, with the evolution of the structural, social, and economic context, case studies in the literature indicate that certain herding communities, on their own initiative, have settled on the outskirts of villages, where they coexist with farmers who are sometimes co-owners of herds [95-98]. This is due to the fact that, in certain transhumance areas, herders no longer feel secure. These settled herding communities may have realized that sedentarization would enable them to claim

infrastructure and land rights, for example. At the same time, other communities seem to be maintaining transhumance [76]. Even if they have established permanent dwellings in association with agriculture, they continue to practice seasonal transhumance with part of their livestock. It should also be noted that some case studies have shown that new forms of conflict can emerge with sedentarization [99], but these conflicts are easily managed thanks to new forms of mediation involving various stakeholders. The literature has found that conflicts between farmers and herders are increasing in the West African region. The root causes and manifestations are central aspects of these conflicts [100,101]. By examining the diverse causes, manifestations, and mechanisms of resolution in pastoral conflicts, a central question emerges: why do some disputes escalate into violence, while others of a similar nature are resolved peacefully or remain invisible in certain contexts? This underscores the inherent variability and complexity of conflict dynamics, as highlighted by [5,24]. Establishing a typology of conflicts is therefore essential to better define their characteristics and identify sustainable, context-specific solutions. Recent research by Adéchian et al. [102] demonstrates that increasing pressures on pastoral systems in West Africa, driven by land tenure challenges, climate change, insecurity, and socio-economic transformations, are pushing herders to transition from mobile or transhumant systems towards more sedentary forms of livestock production. These findings align with broader analyses of farmer interactions in the Sudano-Sahel, which emphasize the need for adaptive governance and conflict transformation strategies [103].

Various management and prevention methods were mentioned in the case studies reported from different countries. With the emphasis on sedentarization, which is variously appreciated by researchers as a solution to conflicts between farmers and herders, whereas it is the option chosen by decision-makers in Benin, it seems interesting to find out how Beninese herders perceive sedentarization and the factors that might militate in favor of its adoption. It is also necessary to assess the impact of sedentarization on the productivity of the cattle herds concerned. Linking the livestock sub-sector to the crop farming sector and ensuring the cohabitation of their players are among the keys to development. To achieve this, we need to define a model for the rational management of agropastoral areas, involving the protagonists (farmers and herders), the State, and traditional chiefs, for example.

Limitations of the Study

This study has certain limitations that must be acknowledged. First, only articles indexed in Elsevier's Scopus database were included in the bibliometric analysis. It should also be noted that Elsevier primarily takes into account documents published in English. This may explain the high number of case study articles from Nigeria and Ghana, which are English-speaking countries in West Africa. Other databases, such as Web of Science, were not included alongside Scopus due to the incompatibility of the metadata export formats across these different databases. Furthermore, the merging of these various databases makes bibliometric analyses in VOSviewer impossible, to the best of our knowledge. Thus, even though Scopus appears more relevant in the field of the humanities and social sciences, it is clear that not all publications addressing the issue of conflicts between farmers and herders are covered by the database. Consequently, unlisted documents were missing from the analyses. For this reason, the thematic analysis conducted took into account a significant number of articles found on Google Scholar that did not appear in Scopus.

Conclusions

The bibliometric analysis of the literature on conflicts between farmers and herders conducted in this study made it possible to identify trends. It also made it possible to assess the evolution of scientific output (distribution of articles) over time. It has been noted that the attention paid to this subject by the scientific community in West Africa has increased since 2019. Researchers from Nigeria and Ghana are the most productive and influential in terms of the number of published articles and their visibility in academic journals. As for Benin, its scientific output appears to be low (10 articles), even though conflicts between farmers and herders have intensified in the country over the past two decades.

The thematic analysis of the listed articles has highlighted several lines of inquiry already addressed by research. It primarily concerns the causes of conflicts, their forms, the nature of the actors involved, the manifestations of conflict, and their consequences for communities. Given the significance of these conflicts between farmers and herders, several research avenues could be considered, namely the typology of the conflicts, to better understand their complexity; the

stakeholders' perceptions regarding the sedentarization of their herds as a solution to these conflicts; and the factors that may influence the adoption of sedentary livestock farming practices. These are all studies whose results could enrich the theoretical framework regarding conflicts between farmers and herders.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Data Availability Statements

The datasets (and/or code) supporting this study are available from the corresponding author upon reasonable request.

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