

Farmer Interview Analysis

AGGREGATES AND AGRICULTURE: UNDERSTANDING THE IMPACTS OF AGGREGATE PRODUCTION ON AGRICULTURE AND IDENTIFYING MITIGATING STRATEGIES

Last updated: 11/10/22

Tier I Project UofG 2017-2934

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Introduction

To better understand farmers' experiences living and working in close proximity to active aggregate extraction operations, we interviewed twenty four farmers who had earlier responded to the survey distributed for us by the Ontario Federation of Agriculture (OFA). The farmers' survey was distributed by the OFA to its entire membership as an unrestricted link, and farmers' interview participation was solicited as part of the survey questionnaire, resulting in random/voluntary self-selection to participate in the interviews by the farmers. Volunteers were sorted for proximity to active aggregate operations and contacted in order, resulting in a total of twenty four interviews which were conducted from June to August of 2021. Within this report, the farmers' responses are reproduced faithfully to provide a sense of both the actual concern and their attitude toward it and the producers themselves. The data has been anonymised to protect privacy, but retains its unique identity through the coded identifier (month.day.time the interview occurred).

Demographics

The farmers interviewed are spread fairly evenly across Ontario, with one in the North (Thunder Bay), seven in the Near North (Muskoka, Barrie and the Kawarthas), four in Eastern Ontario (Smiths Falls, Belleville, and Northumberland and Prince Edward Counties), seven in Southwestern Ontario (Goderich/ACW, London, Orangeville, and Kitchener-Waterloo), and three in Hamilton/Niagara (Flamborough, Port Colborne and Decewsville). Of the farmers interviewed, sixteen can be described as career farmers, earning their living almost solely from agriculture, three have retired from other professional careers to farming, and five have split their careers between farming and other interests. The farms ranged in size from 16 acres to 3,000 acres, with an average size of approximately 550 acres.

The largest proportion of the farms produce cash crops and/or beef, with seven indicating cash crops and beef, six strictly producing cash crops and two raising only beef. Two farms raise sheep, with one using them for meat and dog training, and the other strictly for show. One farm is dairy, one farm claims involvement with equine, one simply indicated “livestock” and one is “trying aquaculture.” One farm indicates a combination of organic beef and produce. Finally, the farms indicated a roughly equal split between being close to quarries (eleven) versus sand and gravel pits (thirteen).

Overall, the farmers’ commentary was surprising, as there was a relatively even split in their perceptions of their neighbouring aggregate operators. Approximately the same number of farmers represented aggregate producers as good neighbours as those who represented aggregate’s presence as negative. While most farmers did acknowledge impacts from their neighbouring aggregate producers, many also recognised that their own production disrupted the neighbourhoods as well and that they had to take responsibility for this fact. Perhaps the most significant result was that the farmers suggested that how the aggregate operation was run was a more significant issue than the operation’s presence itself.

Results

All farmers interviewed indicated impacts arising from local aggregate operations. However, not all farmers indicated negative impacts from the neighbouring aggregate operations on their farms. Ten farmers described overall negative relationships with their neighbouring aggregate producers, indicating that there were either significant concerns regarding observed effects on their farms (traffic, blasting, noise and dust being the most common); significant concerns regarding potential effects on their farms (water quality and quantity, as well as contamination due to secondary uses of site); and problematic working relationships with the operations’ personnel (some relationships involved litigation and some

farmers indicated threats against them). Six farmers indicated overall ambivalent relationships with their neighbouring aggregate operations, largely citing nuisances, but an overall lack of negative impacts. And eight farmers indicated net positive relationships with their local aggregate producers, citing strong communication, community investment (in terms of jobs and major community sponsorships), and a demonstrated concern for agriculture as their chief criteria.

The most significant issues raised in the interviews were neighbourly relations including conflict (31 mentions), concerns with water (19 mentions), roads and traffic (15 mentions), rehabilitation and land loss (13 mentions), noise (11 mentions), lack of oversight (11 mentions), policy issues (9 mentions), communication issues (7 mentions), dust (7 mentions), economic impacts (7 mentions), and blast damage (4 mentions). The farmers' concerns, alongside their explanations follow, in order of relative importance according to the number of times they were mentioned by individual farmers.

Neighbourly Relations

By far, the issue most frequently mentioned by the farmers was the relationship cultivated by the aggregate operators with their neighbouring farmers. All farmers interviewed recognised the reciprocal effects of the aggregate extraction operations on their farm and considered the aggregate operators as neighbours, and most farmers commented on how the aggregate operators managed that relationship, whether positively or negatively. Most farmers noted that aggregate operations that maintained the feel of a local company even if they had been bought by larger corporate entities, generally by operating under their former name or by maintaining a local workforce, received more positive commentary than operations run by absent corporate entities that disregarded their neighbours' concerns. A common

theme raised by the farmers interviewed was that open communication built the best relationships, and feeling that farmers' concerns were taken seriously avoided most problems.

For example, a small mixed farmer in the Near North (interview 6.17.1300) described the introduction of the new owner: "The owner who came over? It was recently sold in the last, I want to say, eight years. And so the new owner came over, introduced himself with a buddy of his that we also had known previously." A semi-retired beef farmer in Hamilton/Niagara (interview 6.24.1400) mentioned that the new corporate owner "is better because they're trying to improve the relationship between the quarry and the neighbours because of, you know, past history. So they're taking complaints seriously." And a small sheep farmer in Southwestern Ontario (interview 6.24.0900) described their relationship with local aggregate

So there is [a local company] a huge company in this area, they do aggregate – they do a lot of things, they've been pretty good to get a hold of. They're out there. They're part of the community. However, they now have been bought out by [a large Canadian corporate] Group, which is big. And now [the large Canadian corporate] Group's been bought out by somebody else again. But they still operate as though they were [the local company], locally. And some of their vehicles still have the [local company] logo and colours. And because they're part of the community, they do try to talk to you, but they, that doesn't mean they're going to change anything, but they will engage.

However, other farmers report that their local operators refuse to engage with their concerns. For example, a surgeon who retired to their family farm (interview 8.10.2000) reports that "most of the questions I've asked they say are personal confidential questions. They wouldn't say how much it cost, give me any information about the quarry. And referred me to [a large Canadian corporate producer]. I

got in touch with [the large Canadian corporate producer] and they never answered any replies whatsoever.” Another farmer in the Near North (interview 6.15.1000) described their relationship with the new owners of a small quarry: “I thought like the first law of business was you don't crap where you eat, you know? And to me, these guys that are coming in are crapping where they eat because they don't live here.”

At the extreme negative end of the scale, more than one farmer reported that their relationship with the aggregate operators devolved into litigation and, in one case, veiled threats of violence. A couple with a mixed farm in Eastern Ontario (interview 6.16.1900) became engaged in litigation with their aggregate operator neighbour because their dog had destroyed some monitoring equipment.

We had a pup and they put the [blasting] monitor on our property without our bekownst. And if we had, we would always lock the pup up. He was, he was only a few months old. Anyway to the monitor and the next thing you know, we get a bill for \$3,000. And so we've contacted them and said, you know, like, you didn't let us know that, you know, you're coming blah, blah. Next thing we get is a small claims, so then you have to hire lawyers.

The wife in the same couple indicated that, following this interaction, a representative of the aggregate operation “pulled in the driveway, got out of his car, [. . .] ordered me out of my vehicle and that we were going in the house and we weren't, he wasn't going to hurry. He was going to cross swords with me or something.” And a retired farmer in Southwestern Ontario (interview 6.18.1300) asked “Are you going to sue? Who are you going to take on the landfill? Are you going to take them on? You're going to take the highway on? Yeah, and there is no protection.”

Overall, reports of positivity were roughly equal with the reports of negativity, and where negative experiences paint the aggregate industry in a very poor light, aggregate operations that engaged

positively with their communities tended to do so proportional to their size. For example, a large aggregate operator in Hamilton/Niagara has made significant donations to the local health system and contributes annually to their community's heritage festival. Other farmers in other regions reported similar attitudes toward their local aggregate operations, demonstrating that they too made positive contributions to their communities.

Water Concerns

The second most frequently mentioned issue was concerns with water in terms of water quality, including the potential for contamination by imported fill, and water quantity due to water take and the potential for damaging the aquifer by operating below the water table. While some farmers mentioned real or suspected effects on their wells, most comments on water issues tended to be projections, especially concerning what might happen if aggregate operators imported fill after extraction operations ceased. For example a semi-retired beef farmer in Hamilton/Niagara (interview 6.24.1400) connects lowering water level in their well to the presence of the quarry next door. "I would say the biggest impact over the years has been our wells. We have two water wells and we've had to deepen them two or three times, between my father and myself. Had to spend the money and deepen them." A mid-size cash crop farmer in Eastern Ontario (interview 8.03.1900) reports that

I have two outdoor ports, one at each end of the house, that I used only for the sake of filling the pool up as quickly as I can in the spring after I pump off the winter blanket. I just turned it on and let it go. I can't do that now. Okay, if I do that my recharging isn't fast enough to keep up to two one water versus just your normal garden hose. And so I already felt one that's my recharge is good enough to supply that one garden hose.

In both cases, the quarries have been operating for a much longer term than water levels have been systematically tracked, preventing corroboration of these claims. In a separate case (interview 6.22.1900), where the aggregate company accepted responsibility for changes in water availability, the trucking company hired to provide water to the farmer sometimes failed to keep the cisterns full.

Water quality concerns tended to connect to the issue of imported fill, which runs the risk of introducing contaminants to the ground water. Any aggregate operation (pit or quarry) might accept imported fill after extraction, but in the interviews this issue tended to be more closely connected to quarries rather than pits. For example, the retired cash crop farmer in Southwestern Ontario (interview 6.13.1800) comments on the neighbouring large quarry that was accepting fill: "Okay, suspect in water, okay. I say suspect. We also live adjacent to essentially a landfill a large city landfill." The small sheep farmer in the Near North (interview 8.17.2000) similarly expresses their concerns about imported fill contaminating the water

My biggest fear is that they're allowed to bring in asphalt and cement to recycle it or whatever and the runoff from it being only 1.5 meters above the water table is that that could affect it. [. . .] And my biggest fear is that eventually, if they need sand, if they're repairing a leak, or whatever, they may bring in the contaminated soil up here and then go back with sand or backfill.

A small minority of farmers, however, indicate that in spite of long term extraction, no effects have been noticed on their water. One small cash crop farmer in Southwestern Ontario (interview 8.09.1900) is clear when they state that "And then we've got most of us underwater, so the waters there. There's been no drawdown whatsoever."

Trucking and Traffic

Issues surrounding trucking, traffic and their effects on local infrastructure were similarly raised as significant concerns by many of the farmers interviewed. In many cases, the traffic was noted as loud, as hazardous, and as causing damage to the roads themselves. None of the farmers interviewed indicated that they had been directly involved in incidents with any of the trucking companies, but one location especially, in the Near North (interviews 8.19.1630 and 8.25.2000), indicated a significant concern for safety after a string of rollover accidents involving aggregate hauling trucks along a short stretch of narrow secondary road. Several farmers indicated that they wouldn't allow their children on the road during trucking hours (8.25.200) and that they were fearful of trucking near local schools (6.16.1900). Overall, trucking is regarded as a significant and visible hazard created by aggregate production.

A number of farmers also expressed a concern about the effects aggregate haulage has on the roads themselves and suggested that aggregate producers should accept a greater proportion of the cost to maintain the roads. One large cash crop farmer in Southwestern Ontario (6.10.0830) recognised that “the improvement to the road structure that they bring isn't just insignificant either.” However, the same farmer also suggested that “the top aggregate producing municipalities [have] been dealing with the provincial government on how these pits are assessed and what they pay for a long time. I think that they would do the aggregate industry better if they stepped up and paid a little bit more.” A small mixed farmer in the Near North (interview 6.17.1300) also notes that “you can tell there's lots of traffic on that road because of the shape of the road and the condition of the road.” A small cash crop farmer in the Near North (interview 8.19.1630) states that “we wanted the road fixed up. There was no shoulders left that was loaded trucks or the trucks. One shoulder, they were gone.” And a retired cash crop farmer in Southwestern Ontario (interview 6.18.1300) indicated that “a problem is the vast destruction of roads.”

Not every farmer interviewed noted impacts of traffic in their commentary, but no farmer provided positive commentary about the effects of trucking. At best, the commentary was neutral – one large cash crop farmer from the Near North (interview 8.12.1530) noted that “whenever you get on the seventh, sure, there's much trucks, but the township made the speed limit 60 kilometers an hour, so you got to go slow anyway,” and a small cash crop farmer from Southwestern Ontario (interview 8.18.2000) stated that “well over 90% of the truck drivers always wave when I meet them on the road” – but most of the commentary focused on damage to the roads or increased noise and increased hazards while using the roads themselves. Two small farmers in the Near North located close to the same concentration of large quarries (interviews 8.19.1630 and 8.25.2000) suggested that moving aggregate transport off of roads and onto rail transport could help to mitigate some of these concerns.

Land Loss and Rehabilitation

Another critical concern frequently raised was the return of land to agricultural production. Of the farmers interviewed, only two seemed to indicate that their related aggregate operations demonstrated clear concerns for the return of the land to agricultural production. It is worth saying that, in both cases, the farmers owned the land and the aggregate operators were contractually obligated to return it to productive agricultural land. A primarily beef farmer in Southwestern Ontario (interview 8.12.1930) describes the agreement he has with his tenant operator:

it's a 25 year lease when we signed, right. So, when they feel the gravel pit is done, they have to rehabilitate it to my specifications within a certain degree, right. We kind of agreed on some of the slopes and stuff like that. My degree of slopes. But I just, I should say this. I wish I had more input as to what they were doing. Okay. Basically, it's two sides. There's one side, one pit east

and I was the one pit west. And the West one has been, like gravels, pretty well stone, got out of it. Basically sand left and they haven't really done anything with it for the past five years, right. So it's just sitting there, but they say they do have plans, but I'm not sure that they're ever going to get around.

This kind of response is repeated among most of the other farmers, as they describe rehabilitation in aspirational terms and as something that should be done, but that often has not. This same farmer quoted above also said, however, that they “wouldn't mind if [the aggregate operator] maybe did some reclamation work.” A small cash crop farmer in Southwestern Ontario (interview 8.18.2000) expressed almost the same sentiment, saying “Well, the only thing that I would say is the plan of rehabilitation. At some point it needs to start following where stuff has been taken out.”

Other farmers express their concern that the land will ultimately not be returned to agricultural production. A mixed organic farmer from Southwestern Ontario (interview 8.19.1445) suggests that once they've taken a percent of what they are sold or licensed for, then there should be a process for when it has to go back to agricultural, or it needs to be truly rezoned so that they should build subdivisions in there or right, or industrial sites if it's suitable and not the agricultural land for subdivisions and keep on using it up.

Another common theme is that the land, once put into aggregate production, will not ever be returned to agriculture. A small cash crop & beef farmer in Eastern Ontario (interview 8.10.2000) indicated that his local operator will sit on a property for a long time rather than rehabilitate it for other use.

Well, they have to put a report in once a year in order to keep their license up. [. . .] the quarry is dead at the moment ,the last 20 years I would say, as far as any activity. And of course, he has about five or six other quarries within 10 miles. [. . .] So it's not making the money but they won't give it up and they won't rehabilitate it.

Overall, rehabilitation is a critical issue with farmers. Importantly, the farmers interviewed tend to report that rehabilitation is not being done on a timely basis and that it is delayed, often in order to guard against future need. Land sitting idle due to aggregate use prevents farmers or other interests from putting it to other, productive uses.

Dust, Noise and Blasting

When asked about the effects of environmental impacts, such as dust, noise and blasting on their farms, farmers' observations tended to be mixed. While no farmer explicitly linked these effects to a loss of farming income, many did indicate impacts on their farms, especially in terms of quality of life. Where these environmental impacts are connected to agricultural production, they tend to be conjectural, except in one case where a mid-size cash crop farmer (interview 8.03.1900) had soil samples indicating a raised level of carbonate downwind from a long term quarry.

Noise was the most frequently mentioned impact, and it tended to be connected to hours of operation. Early start-up, as well as operating twenty-four hours tended to generate the greatest number of complaints. One former beef/aspirational aquaculture farmer in the Near North (interview 6.15.1000) indicated that their elderly mother "called about [the quarry] starting their equipment or their crushing machine at 6:10 in the morning, saying like, you know, that's ridiculous." One of the small sheep farmers in Southwestern Ontario (interview 6.24.0900) and a cash crop farmer in Hamilton/Niagara (interview 8.12.2030) commented that business demands (such as contracts with major local industries) might prompt twenty-four hour aggregate extraction operation and the single farmer in the North (interview 8.11.2000) argued for limiting operation to daytime hours, but without direct explanation for this position. However, most farmers indicated that their local operators respected operating hours and

tended to start at daybreak and not run past dusk, even though, as the mixed organic farmer in Southwestern Ontario (interview 8.19.1445) indicated, their local producer started at “Basically daylight. [. . .], but in the summer, it can be very early morning or late.”

While no specific effects on animals from the noise of operation were articulated, the former beef/aspirational aquaculture Near North farmer (interview 6.15.1000) indicated that they would no longer run cattle on their land because the cattle would have to “listen to the scraping of the rocks. And what I call the steel woodpecker, where they're pounding, trying to break the seam to peel up rocks all day long. I think my cattle would be crazy.” And a sheep farmer from the Near North (8.17.2000) stated that they are “not sure that it doesn't really agitate them. I don't think they get used to it or whatever, when they're crushing it [rock]. You get noticeable just constant sound all day long.” However, other farmers (such as the Near North beef/produce farmer in interview 6.17.1300) claim that the noise does not bother their livestock at all.

Many farmers offered similar comments about dust. As noted above, a cash crop farmer in Eastern Ontario (interview 8.03.1900) presented soil samples indicating increased levels of carbonate in his neighbours' soil and suggests a connection between the quarry's dust and the delayed development of his bush-lot. Two cash crop farmers beside separate quarries in Hamilton/Niagara (interview 6.22.1900 and interview 8.12.2030) feel that they benefited from the dust produced by their neighbouring aggregate operations, with one saying that the “dolomite lime dust that used to blow across? I feel maybe I've benefited from that” and the other that “I've never really limed the farm. [. . .] I would have to assume from that dust that we were getting a free coat of lime.” However, this farmer (interview 8.12.2030) does suggest some negative impact because “the southern roofs on the barns are always rusted from the dust.”

Aside from the nuisance factor of dust, when asked directly about its effect on animals, the sheep farmer from the Near North (interview 8.17.2000) acknowledges that they “can't say it has any negligible effect on them” and the beef farmer from the Near North (interview 8.25.2000) suggests that “the lime, that may be beneficial to the ranch and the cattle.”

Overall, blasting was not raised as a significant concern, with one mixed farmer from Eastern Ontario (interview 6.16.1900) suggesting damage to their house foundation, and a cash crop farmer from Eastern Ontario (interview 8.03.1900) suggesting that blasting caused his well to periodically produce black water. Two farmers, one cash crop farmer from Hamilton/Niagara (interview 8.12.2030) and the other, the beef farmer from the Near North (interview 8.19.1630), observed the intensity of blasting, but without reporting any physical damage or disturbance to the cattle. The Hamilton/Niagara cash crop farmer mentioned above reports that, “I've noticed lately that their blasts are getting a little bit more offensive. I haven't complained or anything, but you can feel them now and I don't think you used to. So maybe they're you know, pushing the window maybe?” and the Near North beef farmer claims that “two young ladies were here doing the environmental study, and fires blasted. Well, they couldn't believe how the ground shook, and we're about two kilometers away.”

In spite of the fact that farmers did report impacts from environmental nuisances on their farms, it is worth noting that they are, by and large, connected to quality of life issues, rather than to impacts on production. The exception is dust, where two farmers suggest that the lime dust produced by the quarries may create a positive effect on their crops. As noted above, a third has shared soil samples suggesting that the long term presence of aggregate production may generate a change in soil

chemistry, which may explain the professional assessment (in interview 8.03.1900) that the growth of his bush lot is stunted.

Policy

A final significant concern raised by farmers in these interviews is the role of policy in shaping relationships between aggregate operations and local farmers. In many cases, farmers reported policy to be inconsistent and that it tended to favour aggregate production, with one farmer suggesting that similar environmental threats from both industries are addressed differently by policy. Overall, the farmers suggested that simplifying policy could ease these relationships.

One of the first issues raised was policy that safeguards aggregate deposits. One of the large cash crop farmers from Southwestern Ontario (interview 6.10.0830) recognises that priority is given to aggregate development that restricts farmers' ability to develop land. He observes that "it places restrictions on the property for everything from surplus to farm severances to build. Like it puts it in a different category and it is restricted yet. We are restricting the agricultural capability of that property through zoning." At the same time, farmers also acknowledged the apparently disproportionate restrictions placed on agricultural producers. The organic beef and produce farmer in Southwestern Ontario (interview 8.19.1445) stated that

I just don't understand why I have such high regulations as a farmer. I have only two head of cattle here but I need to build a building to compost the manure under a roof, okay, which is quite an expense but on the other side this gravel pit could go in the same protected area and it would be fine to wash gravel. And the other issue with that gravel pit is the new one used to be

a feedlot, one of Ontario's largest feedlots [with] up to 5000 head of cattle, so there's lots of contaminate in the aggregate that's getting in and the wash ponds are into the water table.

A number of farmers also indicated that it is unclear who sets the regulations for aggregate extraction and, ultimately, who they would address when aggregate operations fail to follow those policies. A cash crop farmer in Eastern Ontario (interview 8.10.2000) indicated that “when I complained about putting up a fence and them paying half of it, which was the law of [the local municipality], [the aggregate operation] said we are a federal based corporation and don't have to follow [the local municipality's] laws whatsoever.” A cash crop farmer in Hamilton/Niagara (interview 6.22.1900) similarly says that

I'd like to know how we could put in complaints and get into the Ministry of Environment. How are the different ministries, how are the Ministry of Natural Resources, the Conservation Authorities, and the Environment and Climate Change, how they would conduct relations with quarries and how I could access. There's better hope there would be better public access to their workings.

Significantly, a number of farmers indicate that there is a lack of oversight and that policy breaches aren't adequately addressed. They state that it is unclear where complaints should be directed and that there seems to be a lack of enforcement personnel available to address their concerns. A cash crop farmer in Eastern Ontario (interview 8.03.1900) indicates “I wanted [the aggregate operator] to respect us and be a good neighbour. Can we coexist? My biggest problem is the controls that are put in place aren't policed. And so I'm a little disillusioned with lip service.” A mixed farmer in Eastern Ontario (interview 6.16.1900) raised similar issues through formal channels and “what came out of it from the ministries was well, I guess that's a civil issue and you better take it up with him.” In a similar vein, a cash crop/beef farmer in Eastern Ontario (interview 8.10.2000) says that they

asked [the inspector] to give me copies of the quarry review that he does every six years. And unfortunately, six or eight years ago was the last he did it. And he can't find any copy. And then the other one was 15 years ago. And he sent me it and it is essentially very limited details and almost nothing. Right. Okay. His comment was he has 485 quarries to look after [. . .] and three other professionals that just can't get around every six years to make even a report on them.

While the farmers recognise the presence of policy regulating aggregate production, they see these policies as inconsistent and skewed in favour of aggregate production. The farmers suggest that the division of responsibility among multiple agencies, alongside the lack of applicability of municipal regulations to aggregate production, and little oversight from those agencies means that they have little recourse when problems arise with their neighbouring aggregate producers. Most commonly, the farmers indicated a desire for increased oversight of their aggregate production neighbours.

Discussion

Overall, the results are somewhat surprising, as significant evidence of direct impacts on agriculture was not presented by the farmers interviewed. Contrary to the generalised assumption in the literature that aggregate production affects local agriculture directly, quantifiable evidence of direct impacts on crops and livestock was not provided. However, compelling claims were made that agriculture is indirectly impacted through potential effects on water availability, as two farmers close to quarries reported that the quarrying had reduced available water in their wells (interviews 6.24.1400, level; and 8.03.1900, recharge), and others (interviews 6.16.1900 and 6.22.1900) indicated that water availability had been affected in other ways, such as by the loss of a spring in one case and excessive discharge drowning a wetland in another. The majority of aggregate production impacts reported tended to manifest in terms

of quality of life issues, much more than as effects on farming, per se. For example, noise was considered to be an issue especially when it occurred outside of conventional business hours disrupting sleep (interview 6.15.1000), or when it suggests the potential of midnight dumping (interview 8.19.1445). It is important to remember that farming goes beyond being simply a business and that it is generally considered to be a way of life, suggesting that impacts on farm life may be as consequential to the farmers as impacts on the farm's business. It is worth noting that a number of the farmers interviewed had either retired from farming or had chosen their current farm life for a number of reasons, chief among them that they had retired from another profession and subsequently returned to a family farm or property. Each of the farmers interviewed fits the functional and legal definition of farmer, which is clearly demonstrated by their OFA membership, but the nature of their relationship with farming appears to be correlated with their response to aggregate production, as well as the kind of aggregate operation that they neighbour. Farmers for whom agriculture has been their primary and long-term career tend to be more accepting of aggregate production as a corporate neighbour than those who have had a professional career outside of agriculture and returned to farming at a later date. A similar distinction exists between those who live and farm close to sand and gravel pits and those whose experience with aggregate production is related to quarries, where sand and gravel pits tend to be much more positively regarded than quarries.

The first and perhaps most surprising trend in the interviews is the apparent relationship between the nature of the farm and the farmer's attitude toward aggregate production. Farmers with larger farms (generally above 400 acres, but some farms as small as 100 acres share these attitudes) but most especially farmers whose primary profession is agriculture, tended to be more accepting of aggregate production in general. One of the large cash crop farmers from Southwestern Ontario (interview 6.10.0830; 1200 acres) describes their aggregate neighbours as "good people," noting that "they know

how to run a business.” Another large cash crop farmer from Southwestern Ontario (interview 8.18.1900, 3000 acres) says that they “don’t have any aggregate operations that want to be jerks.” Instead, local aggregate producers turn to this particular farmer for advice on issues such as proper use of agricultural chemicals and effective implementation of farming practices. Most large farmers recognise the need for aggregate and agricultural producers to accommodate each other, as their tillage equipment is often as large as, or sometimes larger than, that used by aggregate haulers on the road. Recognising the potential of mutual benefit from the presence of aggregate production, one of these large cash crop farmers (interview 6.10.0830; 1200 acres) acknowledged that aggregate production benefits their farm by improving roads which then accommodates the large farm equipment. Another benefit mentioned by these large cash crop farmers (ex. interviews 6.10.0830 and 8.18.1900) is the opportunity to work with aggregate producers around land use (i.e. more formalised agreements around renting unused land owned by the aggregate operations) and redevelopment of land to agricultural use in the rehabilitation process (interview 8.12.1930, 330 acres).

Complaints about impacts from aggregate production tended to arise more often from smaller farms where the farmer has had a primary profession off the farm, or who has returned to the farm after an absence or inherited it. For example, a sheep farmer in the Near North (interview 8.17.2000; 16 acres, purchased a section of the family farm) focuses closely on the potential of contamination from imported fill, as well as the twin nuisances of dust and noise from their local aggregate site, as they don’t have air conditioning in the house and must keep windows closed in summer and there is continual noise from operations, including the equipment’s backup beepers. The mid-size sheep farmer in Southwestern Ontario (interview 6.24.0900; formerly 200 acres, now 100) focuses primarily on their overall relationship with multiple aggregate companies, describing these companies’ attitudes as generally condescending, and describing a particular company’s representative as essentially incompetent. This

farmer lives amongst a large number of sand and gravel pits, all of which supply the local mining industry, and complained in particular that many of these pits operate 24 hours to satisfy mining's need. The farmer's overall focus tended toward potential problems and quality of life issues, rather than concrete effects on their farm.

While farm scale does seem to connect to farmers' attitudes toward aggregate production, it is important to also connect this to the farmers' relationships with their farms. In many cases, career farmers working beside active aggregate production tended to report a better relationship with the aggregate producers in general. For example, an older, career cash crop farmer in Southwestern Ontario (interview 8.18.2000, 100 acres) has a very good relationship with the neighbouring sand and gravel producer, even having after-hours access to the site as a somewhat informal caretaker. A career cash crop farmer in Hamilton/Niagara (interview 8.12.2030, acreage not recorded) has a largely neutral relationship with the closest quarry (right next door), although he did note that a new quarry in the area was blasting somewhat "obnoxiously." And another farmer who grew up on their family farm and raised beef cattle part-time beside a large quarry in Hamilton/Niagara (interview 6.24.1400; 100 acres) describes the new corporate ownership of the quarry as exemplary corporate citizens, in spite of having had to deepen their water well multiple times in past, probably due to the quarry's operations. While there is no indication why these relationships may differ, the correlation of these farmers' reported attitudes toward aggregate production with the nature of the farm is an important observation.

A second significant trend arising from the interviews is the relationship between the type of aggregate production and farmers' responses, with sand and gravel pits tending to be described as neutral to positive and quarries receiving almost universal criticism. Of the ten quarries described by the farmers, only one, a large corporate quarry in Hamilton/Niagara (interview 6.24.1400), received the description

of being an exemplary corporate citizen. One other quarry in Hamilton/Niagara (interview 8.12.2030) was described in neutral terms by the farmer, who had grown up beside the quarry on a generational farm. Of the other eight quarries described in the interviews, the relationships tended to be quite contentious, with litigation and even threats of violence being reported. As noted earlier, one farm couple (6.16.1900) ended up in small claims court because their dog had damaged a blasting monitor that was placed on their farm without their knowledge, and the same couple reported an incident where one of the quarry's representatives seemed ready to "cross swords" with them. Other farmers working near quarries (for example interviews 6.18.1300 and 8.10.2000) focused on the difficulty of working with these operations and their unwillingness to provide clear and accurate information. A cash crop farmer in Eastern Ontario (8.10.2000) indicated that when he tried to gain information from his local companies they would refuse to answer his questions, calling that information "personal" and "confidential" and that any issue challenged was "grandfathered" and thus moot. A cash crop farmer living beside a quarry in Southwestern Ontario (6.18.1300) suggests that the only way to get the quarry operator to listen is to sue, which would ultimately be futile.

The negativity toward quarries may be related to their nature, as the complaints about blasting (interviews 6.16.1900; 8.03.1900; 8.12.2030; and 8.19.1630) are exclusively connected to quarries, with some amount of damage reported, but no responsibility accepted in these cases. At the same time, virtually all complaints about effects on water were connected to quarries as well. For example, a quarry in Eastern Ontario (described in interview 6.16.1900) is perceived as drying the aquifer by pumping water during drought. Another quarry in the Near North (in interview 6.15.1000) removed a small hill, which the farmer suggests dried up a permanent spring, and a large corporate quarry in Hamilton/Niagara (in interview 6.22.1900) installed a large diameter water discharge pipe into a wetland, flooding it out. In several cases (interviews 6.22.1900; 6.24.1400; and 8.03.1900), the farmers

indicated that their wells had been damaged by the quarries, requiring resolutions ranging from deepening the well, to installing a cistern to substitute for the lost ground water. A small number of these farmers also reported blast damage, including fly rock (interview 6.16.1900) and being the cause of damage to the well (interview 8.03.1900). And complaints about dust tend to be overwhelmingly connected to quarries.

Sand and gravel producers, however, receive a much less negative response from their neighbouring farmers. Perhaps the most significant complaint directed toward sand and gravel pits was about density and whether there was a need for as many pits in the area. The sheep farmer from Southwestern Ontario (interview 6.24.0900) is surrounded by more than twenty pits and is currently involved in fighting a new approval, questioning why, with so many pits already in the area, another is necessary. Perhaps the most significant issue raised in discussion about sand and gravel pits is rehabilitation. In several cases, farmers question delays in rehabilitation which impacts their ability to access that land for agriculture. This is especially relevant to farmers who lease land to aggregate producers because delays in rehabilitation mean that their own land is out of production for extended periods. A beef and cash crop farmer in Southwestern Ontario (interview 8.12.1930) has leased some of his land for aggregate extraction and is worried that he may not recover use of his land for the entire duration of the twenty five year lease. Other farmers indicate that the land may not be rehabilitated to the same quality that it was prior to extraction. A large cash crop farmer in Southwestern Ontario (interview 8.18.1900, 3000 acres) suggests that better care of the topsoil should be taken when preparing the land.

While sand and gravel does receive negative commentary like quarries, there is a much greater amount of positive commentary toward these producers. Sand and gravel producers are much more likely to be regarded as part of the local community, with a number of farmers commenting on their support of the

local community in terms of jobs and investment (interview 6.10.0830), sponsorships and community involvement (interviews 6.10.0830; 6.18.2130; 8.09.1900), and being described directly as “community supporters” (interview 8.25.2000) and especially as “good corporate citizens” (interview 8.18.2000). One of the large farmers in Southwestern Ontario (interview 6.10.0830) comments of their local sand and gravel producers that “I know for a fact that they don't put their name on everything that gets done either. Like, if somebody's just in trouble in the community, they'll step up and write a check. And they don't need somebody to pat them on the back for it.” A number of the farmers also comment on their personal relationships with the sand and gravel producers, in stark contrast to those described with quarry personnel. A retired farmer from Eastern Ontario (interview 6.18.2130) comments that “since I've retired, I tried to get out and walk every day and often the owner of the pit west of me will stop and pick me up as he's going by [. . .] and I'll ride with him to the job site. Just have a visit with him see what's happening. A cash crop farmer from Southwestern Ontario (interview 8.18.2000) tells a similar story, that “well over 90% of the truck drivers wave when I meet them on the road.”

While there are problems described with sand and gravel producers, the farmers' apparent attitude seems distinct from that toward the quarries. As demonstrated above, there is a great deal of positive commentary directed toward sand and gravel producers, while there is little positive commentary directed toward quarries. As discussed above, one farmer in Hamilton/Niagara provided a very positive response toward their neighbouring quarry operation and a second farmer from Hamilton/Niagara provided a neutral assessment of theirs, but the remaining eight farmers living and farming beside quarries represented them as entirely negative. This is in clear contradistinction to sand and gravel pits, where the commentary tends toward positive. There are certainly problems with sand and gravel producers but, overall, the problems appear to be balanced out by these producers' contributions to their respective communities. Even where there is a specific complaint against the operator, the

language used to describe the farmer's involvement with the site and the operator suggests a net positive experience.

Conclusions

The farmers interviewed suggested that aggregate production and agriculture can work together as near neighbours and that the professional and community relationships that must be cultivated between the two producers is its most critical aspect. Aggregate producers tend to be regarded as positive neighbours when they act toward the farmers as neighbours, showing respect for the work that they do and not regarding the land and community as simply a "resource sink." Respect for those who live and work in the community full time is a critical aspect of the relationship and generates the greatest degree of acceptance down the road, whereas a lack of respect which can be demonstrated in many ways is perhaps the greatest potential fault for an aggregate producer. Perhaps the most significant way to demonstrate this respect is through the use of land and water, which are the two most crucial resources for agriculture, because any disruption of the land's productivity through land loss or damage to water resources could be perceived at the very least as disregard for the importance of agriculture. The potential for permanent land loss and damage to the water may explain the overriding negative attitude toward quarries, as quarries tend to have permanent negative impacts on agriculture through land removal and water quality or quantity. Rehabilitation should therefore be a critical concern for aggregate operations, as it is a tangible symbol of their commitment to supporting local agriculture. Timely, agriculturally focused rehabilitation would assure neighbouring farmers that their neighbouring aggregate producers take their interests to heart. The farmers' commentary on specific impacts bears further investigation, as there is an indication that aggregate production may affect certain crops and animals and it is important to separate perceived effects from real. The social impacts, such as effects on

infrastructure and quality of life, may be more critical in these relationships than those on agricultural production. Overall, the farmers interviewed suggest that co-existence between aggregate production and agriculture relies on reciprocal respect that takes into account the needs of both industries and the local community.

Appendix

Semi-structured interview questions

Introductory/preparatory questions

1. How long have you been farming?
2. How big is your farm? How much have you expanded it from when you took over?
3. How many separate land parcels are there? How far are they spread?
4. What is your primary crop/output/product? Why that crop/output/product?

Core questions

1. Where is the closest aggregate operation to your farm? How big is it? How long have they been there?
2. What impacts have you noticed from the pit/quarry? What impacts have your neighbours mentioned?
3. Do you ever go to the pit/quarry? Why?
4. How do you contact the aggregate operation directly?
5. Have you addressed any negative effects with the aggregate operation (or municipality)? Why/why not? What was that response?
6. What does the aggregate operation do that helps you as a farmer? What advice would you like to give the pit/quarry operator about helping you farm better?
7. What does the aggregate operation do to be a good neighbour?
8. What do they do for the community?
9. How does the aggregate operation affect your sense of safety?
10. If a new application for an aggregate operation was to be proposed, would you support it? Why/why not?
11. What would you like to see the aggregate operation do differently? Why?
12. How would an Agriculture Impact Assessment of aggregate operations benefit your farm? (e.g. a report prepared for evaluate potential impacts to agricultural operations and farmland)