



Due Diligence Q&A

What are your investment updates after showcase?

Since the showcase, we are now in discussions with 4 of the 10 largest artificial insemination (AI) companies and all 4 have expressed potential interest in providing support. One of the largest AI companies has expressed interest in a US\$1m (~NZ\$1.5m) investment on the same term as that offered to wholesale investors under this raise. It is also proposing to provide IVF and field trials in exchange for an option to a non-exclusive license. Another AI company has expressed that it is prevented under its current contract with the incumbent supplier, Sexing Technologies, Inc., from providing equity investment but is developing a proposal to provide an upfront payment, also in return for an option to license for a discounted royalty or period of exclusivity for a country.

The company is looking to raise \$2.5 million with oversubscriptions permitted up to \$3 million in aggregate. As Engender intends to reserve \$1.5m for an industry partner, at this stage we can only confirm that \$1 million will be available to angel investors. Of this, approximately \$500,000 has already been raised from existing investors, of which three are dairy farmers; this investment support provides strong validation of the need for Engender's semen sex selection technology in the current economic climate. The company is looking to raise the balance of ~\$500,000 from local angel investors such as those from the ICE Angels showcase and those at the recent AngelHQ showcase at which we presented last week and from which we had a positive response. In addition, the Company also hopes to receive a further ~\$500,000 of non-dilutive funding from Callaghan Innovation through a R&D project grant. We have drafted a grant application and indications suggest that the application is expected to be approved if submitted.

What is the current stage of product development?

Outcomes which have been achieved to date are:

1. The individual processes needed to sort sperm by sex have been unified into a single chip.
2. All capabilities needed to achieve sperm sorting by sex with microfluidic and photonic technology demonstrated in the lab setting.
3. Experiments on-site with an AI partner indicate that the current setup (under research lab conditions) does not impair sperm motility and viability.
4. An enrichment of sexed bovine semen to >70% X-bearing (female-producing) sperm under lab conditions, is expected to be tested by IVF within 6 months of funding.
5. Training of a cohort of research scientists skilled in operating the R&D equipment and materials required for the project to progress.

6. A patent (PCT) has been filed for a novel sorting and orienting method for sperm cells.

Use of Funds

The purpose of this Share Offer is to fund development of a commercial prototype chip and a laboratory prototype instrument to operate the chip for use in trials; and to fund further IP and business development to secure licensees.

The scope of the project is:

1. Engage with an international engineering product development service company to develop a commercial prototype chip suitable for mass production.
2. To develop in-house, a laboratory prototype instrument to operate the microfluidic chip to provide sufficient sorted sperm for the first field AI trial to measure the motility and viability of sorted sperm in a field environment.
3. To further optimize the essential components and control of the quality and quantity of processed semen.
4. Further advance Engender's technology through innovations such as waveguide technology (see Engender's scope of work in the Information Memorandum)
5. Further develop the business by engaging in commercial discussions with likely licensees and/or acquirers of the Company.

What constitutes the commercial stage of this product?

Engender's technology will be further developed as described in the use of funds. Previous development has focused on combining seven processes on to one chip and demonstrating no loss of sperm viability. Further development involves optimizing the process to maximise the yield of high-viability, high-fidelity sexed semen for bull sperm and developing a plan to produce a commercial prototype chip that can be mass produced at low cost. Simultaneously, Engender is focused on developing an office printer-sized instrument to operate the microfluidic chip; currently the chip is operated in a laboratory. This instrument is non-disposable and is expected to house the fluid pumps and lasers that control flow and switching on the chip. This prototype instrument is expected to be produced using off-the-shelf technology. As Engender's development is conducted by the University of Auckland's Photon Factory which has considerable experience in the development of lasers, development of this instrument is expected to be of comparatively low risk compared to development of the microfluidic chip to date. The microfluidic chips developed to date have been tested in a laboratory system developed by the Photon Factory, and development of the laboratory prototype instrument is expected to involve optimizing and streamlining this process.

What is 70% enrichment? How efficient is it at the current stage?

Engender has already developed technology to orient and sort bull semen by sex within a microfluidic chip. Engender is currently optimizing its laboratory prototype chip to provide 70% enrichment of X-bearing (female producing) sperm in bull semen. 70% enrichment involves enriching a semen ejaculate that is initially 50% X-bearing and 50% Y-bearing, to 70% female-bearing sperm. As the cost of producing chips is low and the process does not result in any detectable loss in sperm viability, samples

can be enriched multiple times in series in order to achieve a higher level of enrichment of female-producing (X bearing) sperm. Two enrichment processes (i.e. two chips) in series is expected to produce a 91% female-producing semen straw and three enrichment processes in series is expected to produce a 97.3% female-producing semen straw. The cost of multiple processes in series is expected to be minimal.

What is the expected sale price and how is it justified?

The economics of dairy are complex. However, some work by academic George Seidel Jr of Colorado State University has attempted to model the value added by sex selection in dairy. He found in the United States market a value add of US\$23-67 per straw, with the upper end of the range corresponding to a time of high price heifer calves. These values assumed a constant level of fertility for sexed and unsexed semen. In a 2003 analysis, Seidel hypothesized that with near normal fertility of sexed semen and a premium for sexing in the range of US\$10 per dose (such as anticipated by Engender), sexed semen would likely become economically beneficial for most dairying. Fetrow (2007) found sexed semen could be viable at a price premium under US\$25 assuming a loss in conception rate of less than 10%.

For these reasons, Engender expects to achieve a price premium of US\$12 per sexed semen straw, for a total sale price of US\$20 per straw, of which Engender expects to receive a 15% royalty. This royalty can be controlled through the sale of microfluidic chips which is expected to be sold as one time use disposables. These disposables are cheap as they are produced from PDMS through injection moulding.

The instrument to operate the microfluidic chips is expected to have a ~10 fold less capital cost than the incumbent technology which requires a dedicated laboratory plus capital equipment that alone costs in the range of hundreds of thousands of dollars. The incumbent technology requires flow cytometers for sexing which are US\$300,000 –500,000 capital items, which the incumbent competitor requires to be held in a dedicated lab, which limits the number of sorting centres and necessitates extensive training/employment of highly specialised staff. As the processing of bovine semen into sexed semen must be completed within approximately six hours of when the raw ejaculate is obtained from the bull, only semen from bulls within roughly one hour of the few dedicated labs can be sex selected.

Engender believes, based on discussions with multiple major AI companies, that the market for bovine sexed semen would increase dramatically if a product were available for a moderate premium to unsexed material and with a minimal diminution of fertility.

How will shareholders realise value from their investment?

The likely liquidity strategy is for the Board to approve a trade sale of Engender or its IP rights to a strategic acquirer, most likely an AI company. This could take place as early as the completion of successful IVF or AI industry trials, or be delayed until well after establishment of the technology in the commercial AI market. If the Company is successful in signing a royalty agreement with one or more global AI companies and

becomes revenue positive, it may be possible to list Engender on the NZX or another stock exchange, capital markets permitting. This is unlikely to happen in less than two years from the date of this Information Memorandum.

What capabilities or equipment does Engender need to develop in order to produce the product.

Currently there is a limited capability to perform the lab-to-commercial production R&D at commercial scale in New Zealand, though there is some capability for producing the chips here once the transformation is complete. Therefore, a plan to produce a commercial product is expected be outsourced to offshore engineering designing companies, of which two suitable candidates have been identified. Callaghan Innovation is exploring the possibility of subsequent NZ manufacture.

What is your distribution channel?

One of the world's largest bovine AI companies is backing Engender with a multi-stage deal with the option for a non-exclusive license. This agreement provided Engender with US\$250,000 of resources upfront to assist with the laboratory testing of the microfluidic chip and conduct sperm viability tests, plus a further potential US\$1.5 million of investment and resources post-trial to develop its unique technology into prototypes. Should this AI company exercise its option for a non-exclusive license, Engender will have access to a large market.

Presently, all major North American AI companies have a Sexing Technologies (ST) laboratory or use a nearby ST facility to sex sort semen. Engender aims to license its technology to these AI companies so that they may operate their own sex selection facilities. There are approximately a dozen providers of AI bull semen that represent most of the developed world's market and these companies are expected to utilise Engender's technology to sex select AI semen, and to distribute AI semen straws to farmers.

What is the main risk of the business (science side or commercial side)

The largest identified risk of the business was ensuring viability of sperm throughout the process. As a part of our deal with one of the world's largest AI companies, Engender received a non-dilutive investment of USD\$250,000 of resources, which included the provision of crucial expertise in sperm morphology, viability and handling. Semen was tested at the AI partner's lab and the process was found to not produce a detectable change in viability compared to semen which had not undergone the sex selection process. Being able to develop Engender's process within a commercial AI lab improves the quality and likelihood of a successful process being developed.

A large remaining risk the potential for litigation from the incumbent. As this risk has been identified, Engender has invested significantly in identifying freedom to operate risks and is committed to further developing partnerships with AI companies into

licensing deals which may involve a commitment to assist in the event of litigation. Engender is also investigating obtaining patent insurance.

Could you provide the funding history?

Engender raised \$300,000 from seed investors to investigate the viability of the project. Engender subsequently raised \$750,000 in 2014 on a pre-money valuation of \$1.25m to develop seven processes into a single chip and demonstrate viability of sperm. Engender is now offering \$1 million to angel investors on a pre-money valuation of \$4,642,852.

Recruitment

After funding is secured through this investment offer, additional business development and IP strategy expertise will be recruited. Two candidates have been identified.

Engender utilizes students and staff from the vibrant, collaborative environment of the Photon Factory, with ~30 Chemistry, Physics and Engineering students and staff. Under Engender's relationship with the Photon Factory, other specialist skills sets can be accessed as required. Importantly, because the Photon Factory attracts talent, Engender has access to a deep pool of identified talent to recruit.