British Equestrian Federation / Virginia Tech Internship 2013

By GEORGINA SCARLETT

Me and Fantine

In the summer of 2013 I spent 3 months interning at the Middleburg Agricultural Research and Extension Centre (MAREC). Whenever I am asked to describe my experience the first word that always springs to mind is “Amazing!”. I was lucky enough to be offered by the British Equestrian Federation (BEF) and Virginia Tech an incredible summer that would be both fulfilling and challenging and given the opportunity I would do it all over again in a heartbeat.

Me and Dom Perignon (Peri)

In the October of 2012 I submitted my report on equine welfare entitled “Control of the Equine Irish Welfare Problem” to the BEF and was subsequently selected to attend an interview day at Stoneleigh Park, Warwickshire. There I was interviewed by Dr Rebecca K Splan associate professor at the MAREC, Professor Graham Suggett and Karen Spinner and luckily I was chosen to further my education in a truly beautiful and prominent part of America. During the internship I not only developed pre-existing skills I also learnt many new ones and experienced new situations which helped me progress both professionally and personally.

During my time at the MAREC Dr Splan arranged a number of trips across the summer to leading equestrian competitions, events and breeding establishments. In July we attended Dressage at Lexington, Virginia. We entered into a number of in hand classes one of the broodmares, Baltic Queen of Spades (LA Baltic Inspiration x Mitchs Promise xx, Double Line xx), and one of the 2013 foals, Qabernet VT (Qredit

x Dom Perignon, Domingo) who was still with his dam Dom Perignon (Domingo x Closet Dancer xx, Noble Dancer xx). There was also work to be done preparing the foals for Lexington by clipping and trimming each to ensure they caught the judge's eye, looked professional and attracted attention from the public to show the fantastic breeding programme in place with Virginia Tech. The event was a huge success for our team of interns as it was the first time for all of competing in an in-hand show. Qabernet VT was crowned Reserve Champion Foal 2013 along with winning the ISR/Oldenburg breed class going up against older horses. Baltic Queen of Spades

L to R:
Qabernet VT (Qredit x Dom Perignon, Domingo) with Melanie Peabody
Dom Perignon (Domingo x Closet Dancer xx, Noble Dancer xx) with Cara Barskey and Caitlin Cleaver
Baltic Queen of Spades (LA Baltic Inspiration x Mitchs Promise xx, Double Line xx) with Erin Donlon and Georgina Scarlett

won the Swedish Warmblood breed class and also the Amateur Handlers Class. We also had the privilege in assisting Maryanna Haymon and her team from Marydell Farm with handling some of her mares and foals. Maryanna Haymon is the proud owner of several top class stallions including Don Principe and Doctor Wendell who currently stand at Hilltop Farm in Maryland. As well as competing in the in-hand shows we also had the opportunity to meet other important breeders and owners in the local equine community and watch some of the under saddle work including Polaris VT (Pik L x EM Laudable) a six year old stallion bred by Virginia Tech. It was fascinating to participate in such an amazing competition and learn just what it takes to prepare both yourself and the horse for such an event.

Whilst at the MAREC the other interns and I assisted with a PhD research project looking at nutrition, genetics and breeding. The project was joined by research staff from the Smithsonian Conservation Biology Institute (SCBI). The study

looked at the impact an Omega-3 fatty acid, in the form of a docosahexaenoic acid (DHA) supplement, had on the uterine environment and gene expression in a 12 day old embryo. For the study a research group of 16 mares were split into two groups; 8 were fed the DHA supplement and the remaining 8 were the control. The horses were fed the diet for the entire study during which the mares were artificially inseminated then after 12 days the embryos were flushed for analysis. The project presented the opportunity to witness the fundamental and practical endeavours that go in to research projects that are so often read in journal articles. It also allowed the opportunity to regularly handle Royal Appearance (Riverman x Eyreen II x Lord Calando) one of the MAREC two resident stallions as the mares were artificially inseminated using fresh semen. Sadly data collection was still on going when it came time for me to leave in September, however just prior to my departure I was able to witness the successful collection of the projects first 12 day embryo.

The P-horse filly born form artificial insemination

Through the relationship between the MAREC and the SCBI we were fortunate enough to visit the National Zoo's Smithsonian Conservation Biology Institute in Front Royal, Virginia. The Smithsonian Conservation Biology Institute, which launched on January 25, 2010, serves as an umbrella for the Smithsonian's global effort to conserve species and train future generations of conservationists. The SCBI is headquartered in Front Royal, Virginia, at the facility previously known as the National Zoo's Conservation and Research Centre. We were given a tour of the facility by Smithsonian Research Scientist Budhan Pukazhenthi who showed us the various projects in place to help conserve species such as the Red Panda and the Clouded Leopard. However the highlight of the tour was the chance to see the Przewalski's Horses (P horses) and the first wild foal born from artificial insemination.

Besides research and education the MAREC also breeds high quality sport horses from the broodmares kept on site. As part of the internship I was involved

with a whole range of tasks involved with reproductive management and foaling. By the time I arrived, the MAREC already had all 7 of the 2013 foals born and we were given an initial demonstration of how to correctly handle the foals, progressing as the summer went on how to correctly halter train and lead. It was interesting to get a different perspective of young horse training in America with comparison to my experiences in the United Kingdom. Currently there are two resident stallions, Innkeeper (Secretariat x Sue Babe x Mr Prospector) and Royal Appearance (Riverman x Eyreen II x Lord Calando), who are used for research, education and breeding purposes. In 2013 Royal Appearance was the sire of two foals born at the MAREC; Rhapsodie VT (Royal Appearance x Reisezauber, Regazzoni) and Ripley VT (Royal Apperance x Molly Brown, Mannhattan). Both of whom were registered premium at the International Sporthorse Registry and Oldenburg Registry North America Mare and Foal Inspection. In total the MAREC produced 7 foals in 2013 of which 6 were presented at the ISR/Oldenburg inspection where 4 registered premium. Due to the careful selection of bloodlines, all of the foals bred by the MAREC in 2013 were subsequently sold on, and it is anticipated that a number of them will go on to have notable careers in hand and under saddle. As part of the education program students at the MAREC have an important role in the sales preparation of the foals; students are also involved with the handling and management of the foals whilst they are at the centre. I was able to develop my young horse handling skills from foal handling and leading to preparing for both the yearling and two year olds sales. This involved desensitising the horses to general handling experiences such as grooming, having equipment put onto them for the first time and being led around the farm.

Qabernet VT preparing to be clipped before Dressage at Lexington

On one occasion we were taken on an educational trip to Hilltop Farm Sporthorse Centre Colora, Maryland who were hosting the Stallion Licensing, Mare Performance Test, Mare & Foal Inspection and Yearling & 2-Yr-Old Futurity for the

American Hanoverian Society (AHS). One of the AHS Officials judging the entries was Suzanne Quarles who in the past has donated numerous mares, she herself has bred, for research and breeding to the MAREC. The event showcased a wide variety of youngstock along with different techniques and methods utilised by the handlers and trainers in order to show their horse in the best possible light. Also a number of the horses being inspected had similar bloodlines and the inspection helped understand the traits and conformational points these bloodlines have continued down through the following generations. This was done primarily through the officials' explanations for the scores given to each individual along with comparing offspring with similar bloodlines. Whilst there we also had the opportunity to watch two stallion performances the first was dressage set to music performed by Qredit (Quaterback x Dream Rubina, Dream of Glory) ridden by Hilltops head trainer Christopher Hickey. The second performance was a Pas de Deux, including Don Principe (Donnerhall x Papagena, Prince Thatch xx) and his son Doctor Wendell MF (Don Principe x Stellar Hit MF, Sandro Hit) and they were ridden by Christopher Hickey and Hilltop trainer Michael Bragdell. It was amazing to watch both performances plus seeing Qredit perform as he is the sire of the MAREC own Qabernet VT, gave a small insight into just what he may be capable of in the future.

The MAREC has a wide range of facilities aimed for use during research and student teaching. One of the activities we took part included hay sampling which involved drilling into hay bales produced on the farm to collect a core sample which could be analysed for nutritional content. These samples collected were placed into containers and sent off for analysis to test for moisture content, dry matter, crude protein, adjusted crude protein, acid detergent fibre, neutral detergent fibre, starch, water soluble carbohydrates, simple sugars, crude fat, ash and mineral content. From the reports sent back by an external lab we were able to assess if the hay quality fed to the horses was good or if an extra supplement

Early morning sunrise at the MAREC

would need to be fed. This is an important part of horse management as it can help determine and tailor a horses diet depending on the situation. For example during my time a 5 year old Thoroughbred mare was recovering from hock surgery and was on box rest with only limited hand grazing during the day, therefore in order to keep weight on the mare an appropriate diet was required including high quality hay. The samples taken from the bales helped determine which bales would be best suited for the mare.

We were also given several talks about complementary medicines, including acupuncture and osteopathy, from Dr Tania Woerner of Tally Oaks Veterinary Clinic. Dr Woerner gave both a lecture on both subjects followed by a practical demonstration on one of the broodmares. Though I had previously heard of both practices becoming increasingly popular within the equine industry I had never witnessed them being implemented before. Dr Woerner worked on one mare, which showed sensitivity on several points around the head, neck and hindquarters, with a combination of acupuncture and osteopathy and almost immediately after one treatment showed a marked improvement. Dr Woerner returned for number of weeks and continued to the treat the mare once a week each time an improvement could be seen in the sensitive areas. However one area on the neck continued to show signs of sensitivity so in order to understand the problem further Dr Woerner radiographed the vertebrae in the neck using a portable x-ray; another procedure I had never seen in practice before. Though nothing notable was to be seen on the x-ray it was a fascinating learning curve as Dr Woerner talked us through what we could see on the digital x-rays and what she was looking for. Through this practical experience it encouraged me to far more open minded to complementary medicine and procedures

Dr Woerner performing acupuncture on broodmare Odet

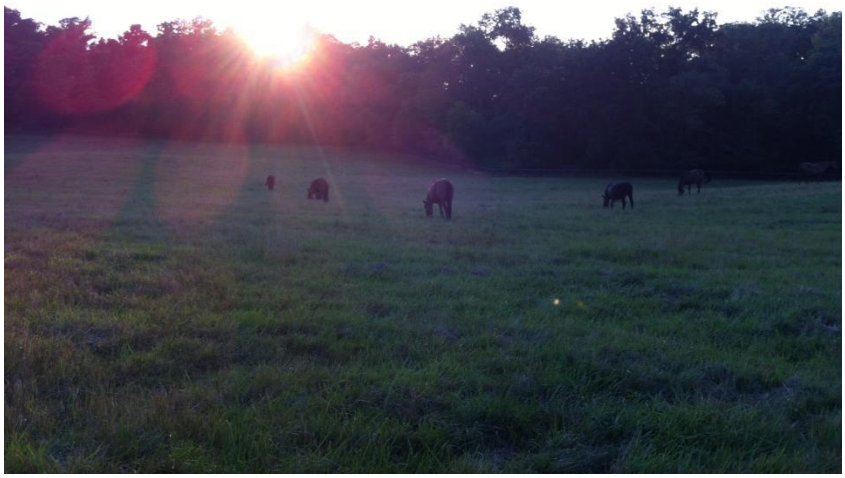
Over the summer we were given a Sire Project to complete. Each intern was given a list of 10 of the mares currently residing at the MAREC and asked to research a 5 generation pedigree for each along with an assessment of the mares performance, conformation, gait, temperament, pedigree, previous production record and reproductive history. We then had to describe what we felt the mare had the ability to produce e.g. dressage, jumper, hunter and/or eventing? Upper or lower level? Amateur and/or professional horse? Breed show or riding type?

The last part of this task then required us to list absolute minimum qualities that would be needed in a stallion for our mares. For the first task we had to match each mare to an appropriate stallion looking at specific factors such as conformation, gaits and temperament, their reproductive ability and the potential for marketability for the foal. The third task of this project gave us an assigned budget that we could spend on stud fees and/or semen. We had to assume that 2 cycles would be needed to get the mares pregnant with frozen semen and we had to, again, make and justify the best matches possible for our mares. For the last task of the project we had to pick the best possible matches for our mares assuming that money was no object and that all mares became pregnant upon the first service. We had to research various stallions and include the price of their stud fee or semen dose.

This project helped educate us in what to look for in both the stallion and the mare when choosing for breeding a successful foal. During the project we assessed the conformation for each of the mares on our lists and decided what the positive features were and what the negative features were which could then potentially be improved

through the correct choice of stallion. Also over the summer due to regular contact and work with the horses and with some guidance from Dr Splan we were also able to build an assessment of the mares' temperament and character. This project was especially useful as it also helped teach what types of horses are used for which disciplines and also how influential bloodlines can be. Plus it helped show me how much work is involved with planning breeding, the considerations that need to be made, the importance of budgeting a breeding season and planning for cycles. It also highlighted the resources that are available for finding potential sires and how important it is to understand the current breeding market and to be able to estimate the future breeding market. Along with being able to assess the needs and wants of the potential buyers and future buyers and the marketability of the foal that is produced.

Dr Splan's current areas of interest include equine breeding, genetics, equine conformation and biomechanics. Dr Splan taught us about bloodlines and genetics giving us an awareness of current popular stallions in use all over the world, trends in breeding and how tactical breeding programmes help improve the quality of sport horse breeding throughout. A subject we focused a lot upon during my stay was conformation; static and dynamic. Learning how to assess conformation and score it correctly according to the standards set by ISR Oldenburg, which includes scores for head, neck, withers and saddle position, forelegs, hind-legs, temperament, sex type and breed type. We assessed different horses on their positive and negative areas of static conformation followed by an assessment of a number of different horse's dynamic conformation in hand and how, when breeding, their negatives can be improved upon through the proper consideration of the stallion chosen. We also learnt how static conformation will affect dynamic conformation, how



conformation can affect performance and how genetics is linked to conformation. From my time spent at the MAREC this was one of the key pieces of information that I took away with me that could help improve the British equine industry, specifically the sport horse industry. In some regards it appears to me that decisions made when it comes to breeding are based on popularity, mainly of the stallion, however I believe this should be the least important factor taken into account. Through both the practical and theoretical work I undertook during the summer it is clear to me that more consideration of conformation, temperament and pedigree of both the mare and the stallion as both are equally influential in the outcome of the offspring

On my first day I was introduced to a research tasks involving the management of worming a large herd of horses the study involved testing for parasites within equine populations. This involved collecting un-contaminated faecal samples from each horse and processing the sample in the lab to check the parasite count. This revealed which horses were low, medium and high shedders within the population allowing for a correct worming programme. This procedure was carried out several times throughout my stay as it is part of an on-going study and will continue into the future. This research task helped me to understand the importance of parasite control and herd healthcare as well as helping me to understand how important following research procedure is.

One of the main equine reproduction tasks I was involved with was learning how to interpret the information given from a trans-rectal ultrasound scan about the ovulatory stages of a mare during her reproductive cycle. This information then being had to be recorded correctly into the breeding records so that it was readily available for interpretation as to when the mare would ovulate or if the mare was pregnant and stage of her pregnancy. This task also involved learning about the reproductive cycle of the mare, the stages that the cycle takes, what a normal cycle looks like on an ultrasound scan, the type of fluid that should be presented, the hormones involved during the cycle and how to manage a reproductive cycle using ultra-sounding, cytology, cultures and hormones, such as oxytocin and prostaglandins. During this process we learnt how to assess the health of an equine embryo and look for signs of twinning. This meant carefully monitoring the embryos inside the mares over a period of 65 days, in order to assess their development and detect their heartbeats. Being able to witness the process and being directly involved with breeding management was extremely rewarding and something I will never forget.

Mare: Unmistaken Habit xx and Foal: Roxbury VT

Another regular task that we did on the farm was to carry out semen collection from the stallions. This involved preparing the AV (artificial vagina), preparing the stallion, by washing him and exciting him using a mares frozen urine sample, controlling a mare, if we needed a tease mare, collecting the actual semen from the stallion using the AV. On the occasions when a tease mare was required I was taught the correct method of handling in order to ensure the safety of all involved in the process. I discovered that collecting from the stallion is a time sensitive situation and all involved in the process must know exactly what their jobs are to avoid any problems occurring. As part of the process of stallion collection I also got to learn how to evaluate fresh semen and the processes of cooling and freezing equine semen, which was very interesting and fun to do. When evaluating fresh semen, we

got to learn about their structure and what abnormalities can occur within that, we had a lecture on the stallion, that taught us the anatomy of the reproductive tract, the requirements of an AV and the aims of using fresh, cooled or frozen semen. Again being able to combine both the theory and practical together was vital to part of the learning experience. Much of the theory around equine reproduction I had been taught as part of my degree, however for me it was even easier to understand and comprehend when viewed and explained in a practical capacity.

As part of the breeding management of the farm I got to witness and participate in AI (Artificial Insemination). This was one of the most amazing experiences of my time at the MAREC, within my first week I had the exciting, and slightly nerve wracking, opportunity to AI one of the mares. The process involved ensuring everything was sterile to prevent any contamination within the mares uterus preparing the mare for the procedure, preparing the frozen semen doses for the pipettes and then administering the correct dose of semen.

A large part of being on the farm was getting to work with the young horses; the two-year olds, the yearlings and the foals. Within a few weeks of the internship we had our first yearling handling lesson where we got to learn about the importance of training young horses correctly and how to put this into practise. We got taught the correct training steps and process of training, how to lead the yearlings correctly, how to assess their way of going and how to adjust their behaviour and ask them to listen to us. It was an extremely useful experience for me as I had never ever worked with any young horses before. In order to become successful within the equine breeding industry, it is important to have practical experience in dealing with horses – both young and mature. My time at the MAREC gave me vital experience in managing a large scale breeding yard; with stress placed on performing all tasks to a

high standard, ensuring that they are completed with effectiveness and care in a time efficient manner. Interns took responsibility for feeding, daily healthcare checks, liaising with the farrier and ensuring daily breeding and research work was completed. We were given the opportunity to assist with the vaccinations of all horses, allowing technique to be developed. Each week one intern was selected to act as assistant barn manager or 'point person' to help develop managerial skills and ensure efficient communication between Dr Splan and all parties upon the farm.

Inspection Day 2013

On my final weekend the MAREC was host to International Sporthorse Registry and Oldenburg Registry North America Mare and Foal Inspection. The inspection was open to owners, breeders and spectators and included mare and foal inspections by the Breeding Director for ISR/Oldenburg N.A. Dr Christian Schacht. The MAREC presented 2 mares, Feiner Star (Feiner Graf x SPS Maxi, Matula) and Allegra Q (Anhaltiner E x EM Fifth Avenue Q, Wertherson), and 6 foals, Breitling VT (Baladin d'Oc x x Flambeau, West Coast), Farrah VT (Fielding x Obey xx, Nepal xx), Qabernet VT, Ripley VT, Rhapsodie VT and Roxbury VT (Rosall x Unmistaken Habit xx, Unmistaken xx). Students both past and present set up and prepared the farm for the event including show preparation for the MAREC horses that were being shown.

Feiner Star at the Inspection

The inspection was a fantastic opportunity to get an inside look into what is actually involved in putting together an inspection for external breeders and clients. It also presented the chance to meet other important members of the equine community along with seeing what other breeders were presenting and being able to compare. This was supported by the skills learnt over summer with regard to

conformation and quality of breeding. The highlight of the day was the inspection of Allegra Q who scored 121 points, making her not only a Premium Mare, but the highest-scoring mare in the 30 year history of the registry. Allegra Q is owned by the Virginia Tech Foundation and was bred by Suzanne Quarles of Some Day Soon Farm. Also Feiner Star, who was one of the top-scoring mares of her AHS tour (7.66), was named Premium mare with 113 points and is owned by Virginia Tech. For me the inspection highlighted the high quality of breeding at the centre and it was truly amazing to be able to work such prolific horses.

So I can quite safely say that on top of being both educational and interesting it was also the very best 3 months of my life! I had an incredible experience that will stay with me for the rest of my life it was a truly unforgettable summer. The people were amazing and the horses were sensational! Best Summer Ever!!!